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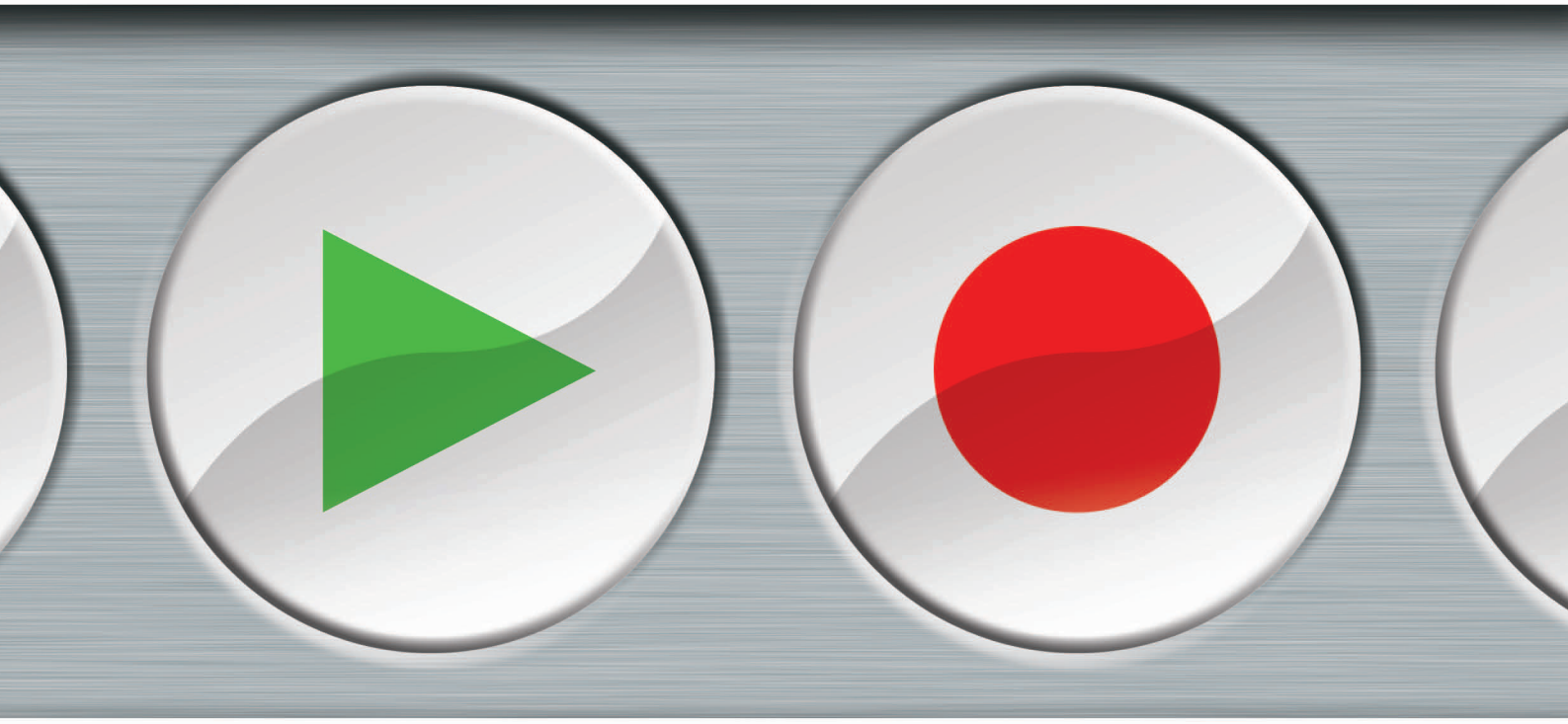

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Year we go… why do next-generation operating systems always fall behind schedule?

**Simon Jary**
**editor-in-chief**

# OS wait watchers

Microsoft's Bill Gates has pointed to 2006 as the release year for the next-generation of Windows, amusingly code-named Longhorn. He didn't actually confirm that Longhorn would ship in 2006; he said that industry speculation that the operating system would come out in 2006 is "probably valid speculation". We'll call that a definitely maybe... To further muddy matters, Bill said that Microsoft will release an alpha version of Longhorn later this year. He didn't mention the first beta version (more advanced than an alpha) that Microsoft had previously said it would deliver in 2004, and is now not expected till early 2005.

At its Windows Engineering Hardware Conference last May, Microsoft claimed that it would deliver Longhorn in 2005, but later backed away from that commitment. Company execs have since declined to specify a release year for Longhorn, which Gates calls a "big breakthrough release". Microsoft showed off a special preview version of the software at its Professional Developers Conference in October 2003. With all these different dates flying around, Gates squirmed that "Longhorn is not a date-driven release". There are a lot of technological "must haves" for Microsoft's answer to OS X that could hold back a release if they aren't completed on time, he admitted.

Confused? You won't be if you remember the problems Apple had in trying to update its operating system prior to Mac OS X. The name of the project wasn't as funny as Longhorn, although Copland (pronounced Cope-land) did make Apple look like a joke. The project's other proposed code-names were maybe more appropriate than it being named after classical composer Aaron Copland. The next-gen Mac OS was nearly called V1 or Maxwell – one a famous bomb, the other something heavy that sunk.

Apple wanted to beat Microsoft to market with a next-generation operating system before Bill's band shipped Windows 95, so Copland was announced at the same time as the Power Mac launch 10 years ago.

Howevr, it quickly slipped behind schedule, with the project overloaded with tons of proposed features – technological "must haves" in Microsoft speak. Not that the company was holding back on resources – dedicating 500 engineers and a $250 million annual budget to the project. In August 1995, mere weeks before the release of Win 95, Apple's chief technologist David Nagel promised that Copland "would be in users' hands by mid-1996".

Nagel jumped ship to AT&T, and Apple revised the launch-date to 1997. Then CEO Gil Amelio scuppered the original vision by announcing that Copland wouldn't ship as one gleaming new OS to combat Windows 95, but would instead be released piecemeal as each part was finished. Bits of Copland would be bolted onto January 1997's System 7.6 and July's Mac OS 8. Amelio's chief technology officer Ellen Hancock twisted the knife further when, realizing the project's many failings, she froze its development exactly a year after Nagel had made his cocky Copland communiqué.

Apple had spent a fortune getting nowhere, and was the laughing stock of the developer community. Alarm bells started clanging. Headless chickens ran a truer course than the desperately flailing Apple. The company began negotiations to buy a fledgling operating system called BeOS from the former president of its Products Division. At the same time, Hancock was considering moving Apple to Sun's Unix-based Solaris and even Microsoft's Windows NT!

Apple finally got its act together in December 1996, when it agreed to purchase NeXT Software for $427 million. The biggest bonus of this move was the eventual return of co-founder Steve Jobs to Apple's helm. But the deadlines kept slipping nonetheless. NeXT's Unix-based OpenStep operating system had few users but was technologically way ahead of its more successful rivals – as much as five to seven years ahead. Apple's plan was to keep the current Mac OS for consumers, and develop OpenStep as a new Mac OS for servers – much like Microsoft's Windows 95 and NT strategy. The NeXT-based OS was code-named Rhapsody, and the last useful parts of Copland were released in OS 8.

A Developer Release of Rhapsody was released in October. In May 1998, Apple announced that the successor to the failed Copland project – now to be called Mac OS X – would ship in the autumn of 1999. By January 2000 the only sign of OS X was Steve's demo of the newly Aquafied system during his Macworld Expo keynote address. He promised a full commercial release that summer. All we got was a Public Beta version in September. We had to wait till the end of March 2001 for the first full release, and it wasn't ready for public consumption until that September, with OS X 10.1. In fact, according to Jobs, OS X didn't fully come of age until the release of 10.2 Jaguar in the middle of 2002 – over eight years after Copland was announced as Apple's saviour.

In its run-up to OS X, Apple missed more deadlines than the builders of Barcelona's Sagrada Familia. It had all the hallmarks of a government-backed Millennium project. And yet, in the end, the company struck gold with its next-generation OS. Every cloud has an Aqua lining.

I'm certainly not suggesting that Longhorn will go the same way as Copland, although it would be nice to think that Microsoft's next-generation operating system really is that wonky. Some analysts suggest even 2006 is an optimistic target. Its ever-changing deadlines spookily mirror Copland's. Imagine if the company did have to scrap it after all the long, expensive years of development. "Bill blows Longhorn", the headlines will scream. And maybe Microsoft will have to buy another OS from a plucky but under-fire company to save its bacon. But where would Bill find a company like that..? **MW**

**There are a lot of technological 'must haves' for Longhorn, Microsoft's answer to OS X, that could hold back its release if they aren't completed on time, admits Bill Gates.**

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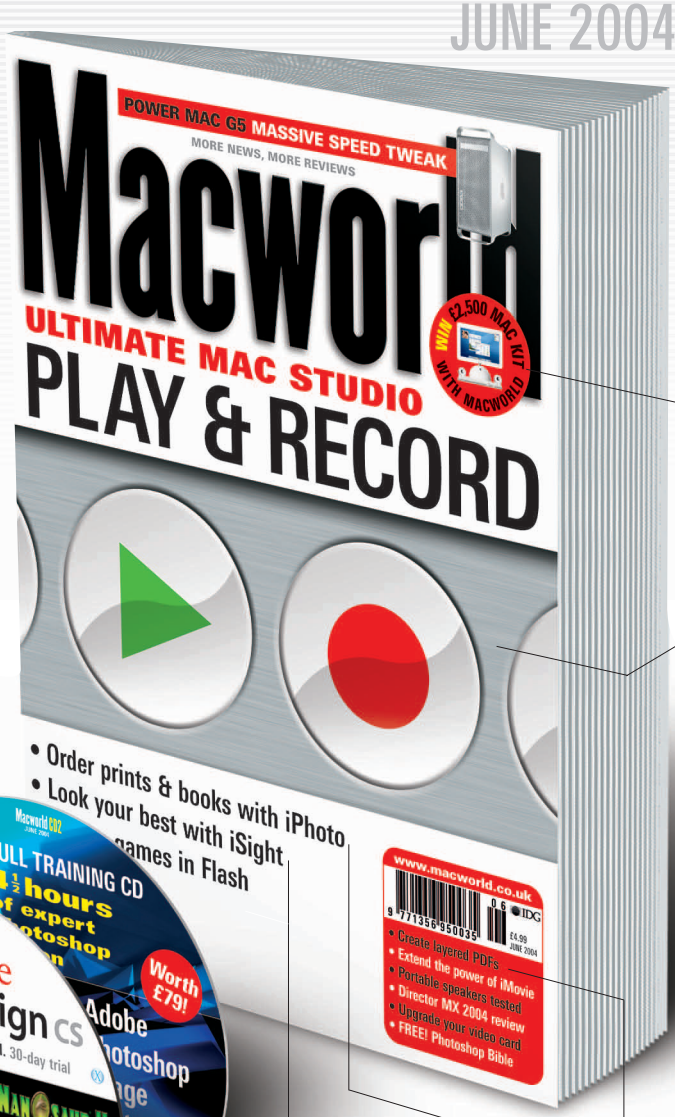
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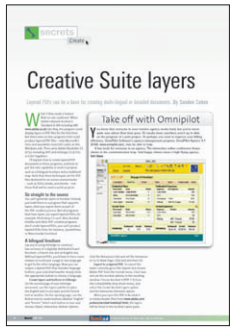


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## NEWS

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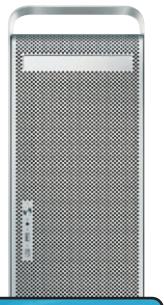
## BUYER'S GUIDE



**215** Macworld's advice for readers buying a Power Mac, iMac, iBook, eMac or PowerBook G4. A full listing of our acclaimed hardware product reviews and group tests for the previous 12 months, with features index and detailed buying advice.

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**May 7**
Paul Hooper speaks to double platinum-selling modern jazz legend **Jamie Cullum** about his music, his muses and his collection of Macs.

**May 14**
With T-Mobile's recent launch of a mobile network-based music player, George Malim investigates the possible evolution of Apple and the iPod in the mobile market. Will Apple and Motorola work together to bring an **iPod/Blackberry device** to market?

**May 21**
Alistair Dabbs gets sexy about **transparency flattening** in Adobe CS. It's a minefield for designers as PostScript 3 doesn't support transparency – so how do you use flattening, and what happens when things go wrong?

**May 28**
Nick Spence talks with contemporary illustrator **Richard May**, co-founder of design portal pixelsurgeon.com. May discusses Apple, the perils of freelancing and the evolution of his distinctive illustrative style.

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*Tell us what you think, and you could win a great prize. This month, we reward readers' letters with a copy of Tony Hawk's Pro Skater 3 – courtesy of Softline distribution. Email letters@macworld.co.uk. Please provide full name and contact details, or write to: Letters, Macworld, 99 Gray's Inn Road, London WC1X 8TY.*

*(Letters received without a name and address will not receive a prize.)*

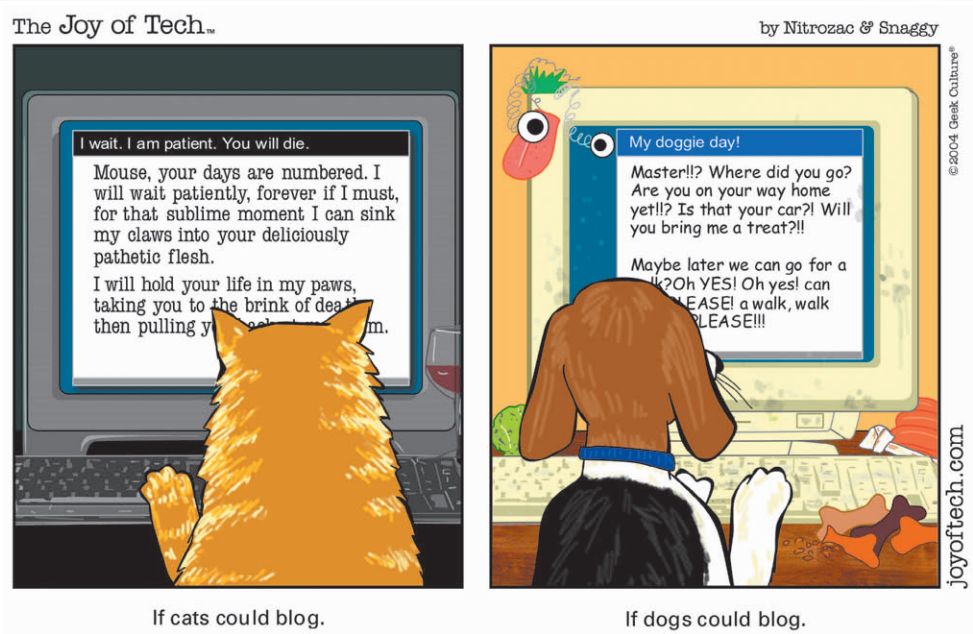
### ⌘ Right way, wrong way

I welcome the opening of an Apple store in London, but don't think it need be the end for resellers. I recently bought a PowerBook in San Francisco. I was nervous and needed help because I was a Switcher.

With the Apple Store out of action for a refurb, I went to CompUSA – the nearest equivalent in the UK is PC World. But what a difference in service. In contrast to my local PC World, where staff are at best hard to find, and don't seem to know anything about the products I want, the Apple desk at CompUSA was perfection. There was a full range of hardware and literature as well as three dedicated Apple sales staff who could answer every query I had. There was no pressure.

I'm delighted with my machine and the service I got. The mesage for PC World and any other Mac resellers is: treat the customer right, and it doesn't matter if you're up against an Apple store.

*Alex Folkes*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I wait. I am patient. You will die.
Mouse, your days are numbered. I will wait patiently, forever if I must, for that sublime moment I can sink my claws into your deliciously pathetic flesh.
I will hold your life in my paws, taking you to the brink of dea
then pulling y
m.
My doggie day!
Master!!? Where did you go? Are you on your way home yet!!? Is that your car?! Will you bring me a treat?!!
Maybe later we can go for a
k?Oh YES! Oh yes! can
EASE! a walk, walk
LEASE!!!
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If cats could blog. If dogs could blog.

### ⌘ Apple forum woe

I recently contributed to a thread about technical difficulties on Apple's discussion boards. Unfortunately, it would appear that the boards are patrolled by commissars searching for the merest whiff of incorrect thinking.

Having made a constructive post, I found myself subjected to mild personal abuse by two of these exalted beings. I managed to reply rationally to one, but when I tried to reply to the other I was thwarted. Shortly after, the thread was pulled.

I switched to the Mac ten months ago and in general have found the community to be civil and helpful. Unfortunately, it is badly let down by zealots bent on sustaining the myth of perfection. Apple could reach greater levels of excellence if it listened to constructive criticism.

*Peter Keene*

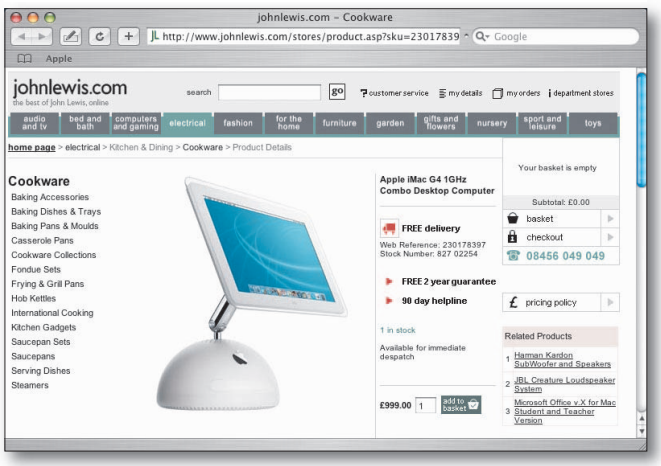
A London reseller told me that this was a common problem. It said they had replacements at all of its branches. It must be a good business for them, as well as for Apple.

Perhaps a retrofit of a rubber boot or tape at the interface and a plastic sleeve to cover the line would be a solution for Mac users. The present condition certainly isn't good enough.

*Robert Kovalic*

### *Readers' drives*

*Paul Keyworth was astonished to discover that Macs also do the washing up.*




### ⌘ Break in tradition

I've been using Macs since 1984 and have had few problems – but I was shocked to realize that a poorly designed power adaptor and line interface would cost £75 to let me continue to use my 15-inch G4 TiBook.

The problem is caused by the thin line entering the adaptor. I'm always careful to coil it loosely and not put any stress on it. Recently it popped, right at the adaptor/cord interface where it's impossible to repair. It is also impossible to take the adaptor apart. Comparing the adaptor with the one that came with older PowerBooks shows what design aesthetics mean in loss of strength and flexibility.

### ⌘ Spec-tacular feat

I'm writing about the Jedi Knight Academy Demo. You state in the magazine that it requires Mac OS X 10.2.6, with a 500MHz G3 or better. Out of curiosity, I tried it on my 450MHz G3 running Mac OS 9.2.2, and it worked fine. Do you do this on purpose to make sure that us 9.2.2 stalwarts 'upgrade' to OS X?

*GJ Appleby*

*The minimum specs are given as those that allow the programs to run smoothly – but if you've no problems running them on Macs that don't reach said specs, well done to you! They're a guide, not always a requirement.* MW

This month's CD gives you the opportunity to try out two real biggies for 30 days – Adobe InDesign CS and FileMaker Pro 7.0. There's all the usual items plus a one-level demo of Nanosaur II. Over to Vic Lennard...

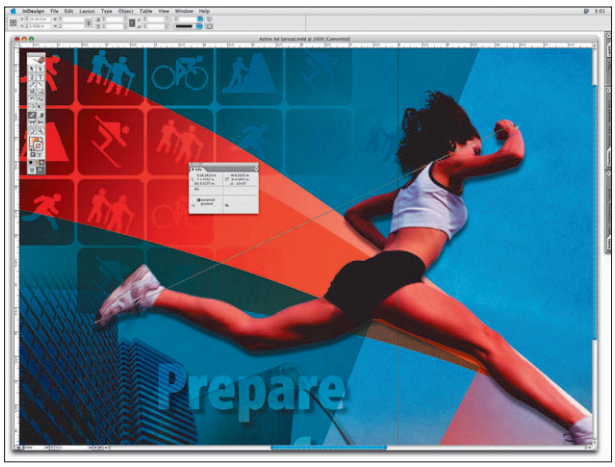
## MAIN ITEMS

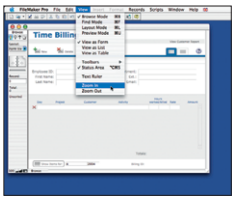
### Adobe InDesign CS 30-day trial

Adobe InDesign CS takes page design to a new level, combining production power and creative freedom with innovative cross-media support. Through its tight integration with Adobe Photoshop, Illustrator and Acrobat, this essential upgrade from InDesign 2.0 helps you produce pages quickly and output them reliably.

New features include Separations Preview palette, Story Editor, flexible workspace management, enhanced support for Photoshop (PSD) files, nested styles, running headers and footers in tables, stroke style editor, enhanced XML support, and document presets.

Requires Mac OS X 10.2 or higher.



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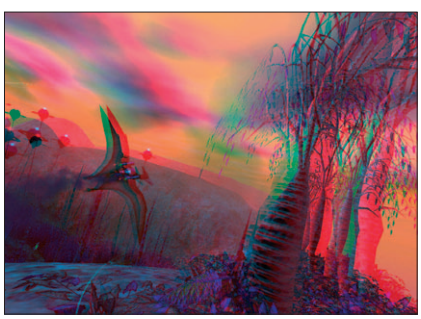
Requires Mac OS X 10.2.8 or higher.



### Nanosaur 2 demo

Pilot a pterodactyl loaded with hi-tech weaponry! Blast enemy dinos and save eggs. If you have a pair of 3D glasses, get them out (see left); Nanosaur II supports anaglyph and LCD shutter glasses for a totally immersive 3D experience.

Requires Mac OS X 10.2.6 or higher and a powerful graphics card with at least 32MB VRAM.

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# Cover CD1

## JUNE 2004

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## INSTALL

Before you start working your way through the software on our CD, go to the System Utilities folder and make sure you install the following:

**Adobe Reader 6 (OS X only)**
Install this to be able to read many of the on-screen manuals. Acrobat Reader 5.1 also available.

**StuffIt Standard**
Installers for StuffIt Standard 7.03 (Mac OS 9) and StuffIt Standard 8.02 (Mac OS X) are included.

**QuickTime 6**
Some programs require QuickTime 6. This can be downloaded from www.apple.com/quicktime/download.

## INSIDE MACWORLD & SERIOUS SOFTWARE

### Concepts Unlimited 1.0 SP3

The first modelling application totally focused on conceptual and preliminary design. Demo.

### GraphicConverter 5.0.1

Picture converter and manipulator that can handle most basic edits. Lots of new features in this regularly updated app. Shareware.

### iKnow F1

A Formula 1 encyclopedia for your iPod. Uses the Notes folder, accessible via the NoteReader. Impress your friends! Freeware.

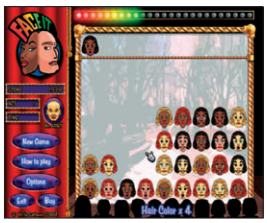
### Pharaoh's Gold & Yexi

Two terrific offerings from renowned games author, F C Covett. Go hunting for gold, and take command of a powerful starship. Shareware.

### Demos/trials include...

Boinx Miracle Sight 1.0
Data Rescue X, DdM 0.8
DiscBlaze 3, Earthdesk
Easybeat2.0, EvoCam 3.2
Final Vinyl 1.1.2, FootTrack
FuzzPlus VST
grband assistant
iDropper 4, Interarchy 7.0.1
iRecord Music
Keep An Eye 1.5, Mayhem
Radio Lover, Security Spy 1.0
Spam Stopper 1.5.0
SpamSieve 2.1.2
Speed Download 2.3.3

## GAMES WORLD

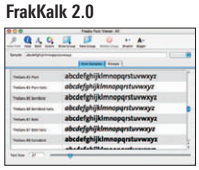


This month's Top 10 Shareware Games includes a number of new games, including the blob-linking Bee Cells (far left) and people-matching Face It (left), plus the latest versions of many of your favourites.

## MAC OS X/9 SHAREWARE & UPDATERS

*Almost 80 useful programs, all subdivided into categories, including:*
ABF Launcher 1.1
Amazing OS X 2.6.5
Apimac Secret Folder X 2.6
AquaChat AV
Aquila Calendar
ASCIIseek 2.6.7
AudioFinder 3.1.2
Cocktail 3.4.5

ConvertIt
Dock Detox
Doublet Scan 10.1.3
EasyBatchPhoto 1.4.2
Export Artwork 3.7.3
Fonts in Action 1.0
Forward Chainer 1.0
FrakKalk 2.0



Freaky Font Viewer 1.5 X
iClip 2.7.1
Intaglio 1.9
iPhoto Override 4
LandscapeCalc 1.3.5
Lazee 1.2
MacFlightPlanner1.21
MAS FX Arranger
MidiGrasshopper
MoreClocks 3.5.1
MorphX 2.7.1
MoveItemsX 1.3
Multi-Board X
PhotoReviewer 1.2
Pixadex 1.5

Reference Miner 1.2.1
Safari2Yahoo 1.2.1
SiteSucker 1.6.1
SoraTile 2.4.6
Tex-Edit Plus 4.6.7
TinkerTool 3.21
Trash X 1.7
UnCoverIt 2.0.3

UPDATERS
*This month's dedicated updaters folder includes over 20MB of patches to bring many popular applications bang up-to-date, including:*
CatDV Pro 3.0.9
NAV Mar 2004
Retrospect 6.0 update
Virex Mar 2004

## CD CATALOGUE

Courtesy of Mark Pirri's superb DiskTracker program, Macworld brings you a searchable catalogue of all our CDs from 1997 to 2004 – almost 452,000 files! This will grow month by month to allow you to find any file you want, without wearing out your CD drive. The latest version of DiskTracker (2.3) is also included – don't forget to register if you find our library useful.

## FAULTY COVER CD-ROM?

- If your cover disc is broken and you want a replacement CD, please contact Jaime Parker on 020 7071 3661, or email at jaimep@macworld.co.uk
- If your cover CD doesn't seem to work as it should, please check you have read all the instructions on the cover disc pages carefully first. If it still doesn't work, then please email cd@macworld.co.uk
- Drag installer files from the CD to your desktop before clicking on them.

## DON'T MISS...

**Cool Extras**
Three new sets of icons for you to use and enjoy:
- H30 from Milosz Wlazlo
- Noia Applications – 18 original icons from Carlitus
- Simple Flat – 30 icons from Dave Vedder

**Mac ISP**
Access offer from Moose Internet Services.

**Netscape/Internet Explorer/Opera**
Netscape X 7.1, IE X 5.2.3, IE 5.1.7 & OE 5.0.6, and Opera 6.0.3

**Plus...**
... many thanks to Simon Youngjohns (youngjohns@hotmail.com) for our CD icons.

## SHAREWARE

Association of Shareware Professionals

Shareware is a distribution method, not a type of software. It makes fitting your needs easier, as you can try before you buy. Shareware has the ultimate money-back guarantee – if you don't use the product, you don't pay for it. If you try a Shareware program and continue using it, you are expected to register. Support shareware authors so that they continue to provide high-quality programs for the Mac.

page 14

# Cover CD 2
## JUNE 2004

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# FULL VTC TRAINING CD
# ON-SALE FOR £79.95
# FREE WITH MACWORLD

## Adobe Photoshop Image Acquisition & Restoration

VTC

## 4.5 hours of expert tuition

**Phil Hawkins has been a landscape photographer in Yosemite National Park for 22 years and an avid user of Photoshop for the last seven years. In this tutorial, "Adobe Photoshop Image Restoration – Image Acquisition and Retouching", he begins by teaching photography concepts: image colour, film grain, tonal range and cropping techniques are covered. Next, he moves into acquisition methods such as scanning and importing. Once the image has been brought into Photoshop, he discusses file management, resolution and bit depth. He follows up with colour correction, composition and finally image restoration.**

**This project-based tutorial (66 movies, running for 4.5 hours) will help any Adobe Photoshop user from version 5.0 up to CS.**

**The version of Photoshop used in the tutorials is running on Windows. However, full Mac instructions are given in the movies, and all features work on the Mac in the same way as on Windows.**

**The Virtual Training Company (VTC) was founded in 1996, producing CD-based training for Apple software. The CDs include short, concise movies that guide users step-by-step through the software application.**

**VTC continues to expand by consistently producing affordable training materials for computer software. VTC will continue to produce training for newer versions of existing software, and expand its library into networking, business, and beyond.**

**www.vtc.com**

# iPhoto print-ordering arrives

**Yahoo says...**

**13%** of backpackers tote a notebook.

**20%** of under-25s travel with an MP3 player or iPod.

Over two years since iPhoto's release, Apple has finally enabled online print ordering from within iPhoto for UK and European Mac users. This feature has been available to US Mac users since January 2002, when iPhoto 1.0 was released.

Apple CEO Steve Jobs promised to deliver the feature during January's Macworld Expo keynote, proffering a rare apology for the prolonged wait: "Sorry it took us so long," he said.

Using the service requires iLife '04, at least a G3-based Mac running Mac OS X 10.2.6 or later, and a recent version of QuickTime. iLife costs £39 including VAT.

This has caused some Mac users to complain, because in the US the feature was available in free iterations of Apple's application.

Apple has enabled both the capacity to order prints in a variety of sizes, and the ability to order linen-bound photo books in several different styles and colours: Catalog, Classic, Collage, Picture Book, Portfolio, Story Book and Year Book. The books (pictured left) cost from £16.99 for ten images.

Order Prints
Kodak
Print Service
Quick Order
10 x 15cm (4 x 6")'s
10 x 15cm (4 x 6")
13 x 18cm (5 x 7")
5 x 8cm (2 x 3")
15 x 20cm (6 x 8")
20 x 25cm (8 x 10")
20 x 30cm (8 x 12")
£0.23 each
0.49 each
1.15 for 4
1.15 each
1.39 each
1.69 each
To order prints, you need an Apple account with 1-Click® ordering enabled. If you don't have an Apple account, you can create one in just a few minutes by clicking Set Up Account.
Use a Coupon...
Subtotal:
£0.00
Shipping:
VAT (10%):
Low resolution may result in poor print quality.
Order Total:
Account Info
Cancel
Set Up Account

## Apple iPhoto price comparisons
(cost per single 6-x-4-inch print)

**Apple iPhoto – 23p**
**Delivery:** £1.99
**Where:** Conveniently placed inside iPhoto application

**Ofoto – 24p**
**Delivery:** 99p
**Where:** www.ofoto.co.uk

**PhotoBox – 29p**
(24p for 20 or more, or 19p if you pre-pay)
**Delivery:** Standard Royal Mail charges.
**Where:** www.photobox.co.uk

**BonusPrint – 15p**
**Delivery:** 90p
**Where:** www.bonusprint.co.uk

**Boots Online – 30p**
**Delivery:** £1.50
**Where:** www.boots.com

**Jessops – 49p/15p**
(49p per image for 1-4 images; 15p per image for 40+ images
**Delivery:** No charge – you pick up
**Where:** In-store, three-day service

**Note: For the purpose of this comparison, only the popular 6-x-4-inch format is covered. Other sizes and services are available from some companies. Apple is unique in offering custom books. These prices start at £16.99 for a 10-page book. Inclusion in this table is no guarantee of a service. Prices exclude VAT.**

Pictures cost from 23p each (for 4-x-6-inch prints) to £1.69 (for 8-x-12-inch prints). Local rate VAT and a £1.99 shipping charge is also levied on each order. "To order prints, you need an Apple account with One-Click ordering enabled. If you don't have an Apple account, you can create one in just a few minutes by clicking Set Up Account," Apple says.

The service is available from within the application.

Europe's Mac users have been strenuous in their demand that Apple enable the feature here. There have been petitions, campaigns, a steady stream of readers letters and multiple diatribes in online discussion forums. February 2003 saw an International iPhoto Day of Action when Mac users wrote to Apple to ask why the service wasn't available outside the US.

Apple has been hampered in its attempt to deliver the feature outside the US because it has been looking for a partner that can deliver the service internationally. It collaborates with Kodak in the US.

Last year, Apple sources told Macworld that Apple wanted to extend that Kodak relationship internationally. They claimed that under Apple's then-existing deal with Kodak, the company had to ensure that a certain number of prints were processed annually, and that an international deal would facilitate reaching mutually agreed targets.

An explosion of digital-camera sales globally alongside increased broadband adoption caused Lyra Research to predict that 14 billion digital photos will be printed worldwide in 2007.

■ Apple has released an update (4.0.1) to iPhoto, adding organizational and stability enhancements. It delivers faster photo imports, smoother image viewing and easier image sharing using Rendezvous. Apple says the update also improves photo thumbnail views, though users need to update them first. **MW**

**Jonny Evans**

For more info on iPhoto print ordering, see page 87.

## Apple snappers in a flap

The introduction of print ordering form within iPhoto generated much comment. Here are a few taken from Macworld Online's Forums (www.macworld.co.uk/forums).

"It requires iLife '04 – iPhoto 2 isn't supported; I'll just have to stick with my trusty inkjet."

"I suspect Apple is using this to force us to buy iLife '04."

"Apple shouldn't force people to upgrade to iPhoto 4 to have the printing, especially as we've all been looking at the icons for it since version 2. Why does it need iPhoto 4?"

"It will stop some users as they will say "Screw you, I'm not upgrading," and go elsewhere."

"iPhoto and iTunes should be kept free – they are essential, especially with the popularity of digital cameras and iPods."

"It seems a little pricey."

"I ordered my first iPhoto Book last Friday (March 19); I've just checked the order status and it has already shipped."

"I received my first order of photos this morning – they are pretty good, I'm no expert, but to me they look and feel like real photos."

# iPod mini delayed by own success

Apple won't ship the iPod mini internationally until July – three months later than originally promised. The company says that this is because of "much stronger than expected demand in the US".

iPod mini's US sales have been so strong that Apple has decided to divert stock originally slated for its international markets to the US, to meet consumer hunger there. Apple confirmed that US demand alone "far exceeds" the total planned supply of iPod minis until the end of June.

"Apple expects to ramp-up its manufacturing of the iPod mini to meet worldwide demand in the July quarter," the company said. "It's a huge hit".

The company's vice president of hardware product marketing Greg Joswiak hinted to the Financial Times that the supply problems may be caused by a shortage of hard drives for the product: "We are actually consuming just about all the 4GB 1-inch Microdrives Hitachi makes. As they make more, we'll get more."

As such, Joswiak explained: "We felt it was better to hold off on the release rather than have shortages everywhere."

Apple's UK resellers weren't entirely surprised. One remarked: "I would have expected Apple to have confirmed UK pricing by now if the iPod mini was going to be available in April."

Hitachi is evidently benefiting from the product's success. A spokeswoman told Macworld: "The 4GB drive has been immensely popular, and demand is outstripping supply."

Hitachi acquired IBM's then loss-making Microdrive business unit for $2.05 billion in 2002. Now, the Japanese company plans to ramp-up manufacturing for the product, according to Reuters.

"We're actively working to boost production capabilities, but cannot share the details of those plans at this time," the company said.

With Apple's needs and success driving Microdrive demand, a spokesman said: "We are planning to boost production at our plant in Thailand, and it will come sooner rather than later."

## Growing market

In a strange change of habit, Wall Street welcomed the news. Apple has been castigated by the Street in the past when it has missed or delayed a product launch. Not this time. Apple's share values raced higher as investors digested the news (see Business News, page 32).

Speaking to MacCentral, Joswiak observed that the successful iPod mini is not detracting from sales of the company's existing iPod.

"The iPod mini is doing as we hoped it would by growing the market for the iPod rather than cannibalizing the existing business," he said.

The news could be a mixed blessing for the company. As its iTunes Music Store continues to gain momentum in the US but isn't yet available beyond that country, Apple may benefit from shipping its hotly anticipated new product at a point closer to launching an international store.

Standard and Poor's analyst Scott Kessler said: "Once someone has an iPod, they're not changing from iTunes because iTunes is designed to serve iPod users." **MW**

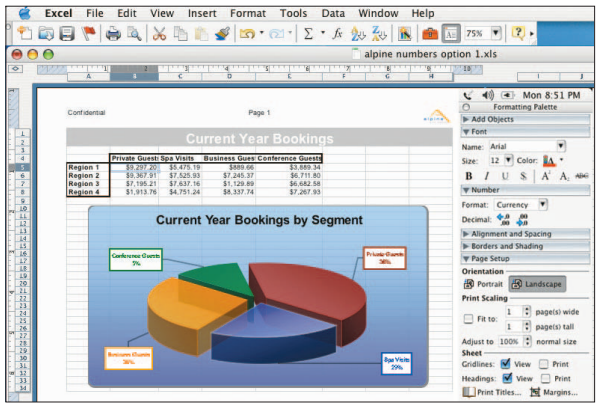
**Jonny Evans**

# Office 2004: more new features appear

Microsoft's Mac Business Unit has disclosed more information about its forthcoming Office 2004 for Mac productivity software, as some reports claim the product has entered manufacturing for an April or May launch. A new online Flash demo of the product is available that shows fresh features. The company stresses the philosophy behind its new product as "manage, create and share".

A new Project Center allows Mac users to view all contacts, documents and notes related to a project in one place that can be accessed by any Office application. Email application Entourage improvements include a new three column view, which puts the reading pane to the right of the email list so users can read more of a message without scrolling through it. Junk-mail filtering appears, and an archiving feature lets users export messages, contacts or schedules into an Entourage archive package.

New Word features include a notebook layout view that supports tabs, and allows users to flag entries and record sound into the document while users type. PowerPoint users with stage fright will benefit from Office 2004's new Presenter Tools. Visible only on a presenter's Mac, these will include an on-screen clock (so you don't overrun) a thumbnail slide view and a notes pane. More details on Office 2004, Macworld March 2004. **MW**


Excel File Edit View Insert Format Tools Data Window Help
alpine numbers option 1.xls
Current Year Bookings
Current Year Bookings by Segment

# 5,000 free Mac Expo tickets

**Free tickets for November's UK MacExpo 2004 are available as the organizers have begun accepting registrations. At least 5,000 freebies will be distributed for the show, which takes place once again at Islington's Business Design Centre in London. Exhibition space for the show – which has been well-received by the Mac community every year since inception – is selling out.**

**Last year's show attracted 100 exhibitors and 22,844 attendees. This year will see an extended conference programme with hands-on sessions, and dedicated iPod, digital-audio and making-music areas.** www.mac-expo.co.uk

**Apple Expo Paris organizer Reed Exhibitions is taking registrations for this September's Paris event, which runs August 31 to September 4 at Paris Expo, Porte De Versailles, Hall 1.**

**Reed is also accepting registration for the keynote, which will be held at the Palais des Congrès on Tuesday, August 31 at 10am. Apple CEO Steve Jobs is yet to confirm whether he will deliver the address.**

**Special events scheduled for this year's show include Cyberkids, which will give Mac training to children of up to 12, while an Easy Mac session will "welcome beginners of all ages to the Mac world", and iLife '04 will introduce attendees will include training in the new iLife applications.**

**The event will include solutions centres tailored to markets including: creative; small business and health; education; games and music; developers and innovation and a games arcade.** **MW**

# Next Mac OS X version to allow spoken-word controls

**1in3** adults have never surfed the Web.

**50%** of UK homes do not have Internet access.

(Source: BBC.)

Apple is developing new technologies to make Mac OS X more accessible for people with visual and learning disabilities, though these won't be made available until "the next major release of OS X", Apple says. Macworld can confirm that this certainly means Mac OS X 10.4 – the next new version of Apple's OS.

Apple previewed its new Apple Spoken Interface technologies at the 19th annual Technology & Persons with Disabilities Conference in LA.

It's a major benefit for a host of people: recent EU figures show that 37 million people may at last be able to get equal access to life-changing computer technologies as a result of Apple's move – at a fraction of the price of Windows equivalents.

The move follows Netherlands developer ALVA Access Group's decision to end development of its proprietary software (outSPOKEN and inLARGE for Mac) that offered similar features last summer.

Windows screen-reader JAWS Standard Edition costs £655, rising to £785 (excluding VAT) for the Pro version. Available to open up access to most Windows versions, JAWS is not truly integrated with the OS, so Apple's choice to make these features part of its operating system makes moving to Mac OS X 10.4 a bargain for visually disabled computer users.

Apple's OS X product manager Mike Shebanek said: "Third-party solutions have always been bolted onto the OS, and have had to play catch-up when OS changes are made. Apple is building this into the OS instead. We knew we could do a great job on this."

Apple describes the technology thus: "The Universal Access capabilities of Mac OS X will soon be enhanced with a spoken interface that provides a new way, through speech, audible cues, and keyboard navigation, to access the Macintosh," the company says.

### Fully integrated control kit

Apple's Spoken Interface will be fully integrated in OS X 10.4 at a user-interface level. In use, it will read Web pages, Mail messages and word-processing documents.

It doesn't end there – Spoken Interface will offer "comprehensive audio descriptions" of a user's workspace and what's going on inside it, and it will make it possible for Mac users to navigate their computer and control applications and the system

## Go, go, go… Close Combat

**Three games developers – Destineer, Atomic and Gathering of Developers – are working together to develop two highly realistic battlefield simulations, Close Combat: First to Fight (a team-based 3D shooter) and Close Combat: Red Phoenix (a real-time strategy game). First to Fight ships late 2004, the other in early 2005.**

**Both soldiering titles are being developed with help from the US Marines, and both titles will mark the introduction of a brand-new 21st century 3D engine, developed by Destineer. The games will be available for Mac, Windows and Xbox.** www.closecombat.com

## Downloaders face the law

UK record labels will sue file-sharing music fans, according to industry association, the British Phonographic Industry (BPI), which issued its warning in March.

The BPI has begun an instant-messaging campaign to warn music downloaders of its plans. The decision follows publication of research by the BPI that claims eight million people in the UK are downloading music – 92 per cent of them illegally, it claims.

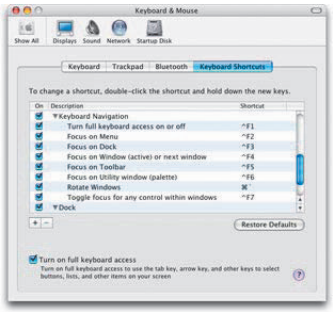
"A comparison of the buying behaviour indicates that downloaders spending on albums was down 32 per cent, and spending on singles was down 59 per cent over the previous year", the organization said.

The BPI warns: "Illegal file-sharing is causing real financial damage to artists, songwriters, record companies, publishers, retailers and everyone involved in the business."

BPI chairman Peter Jamieson said: "There is no clearer evidence of the damage that illegal downloading is doing to British music and the British music industry."

He added: "Research reveals that the bulk of the problem of illegal downloading is facilitated by a small hardcore of people who are offering hundreds and often thousands of music files over the Internet".

**Jonny Evans**




itself. The goal? "Equal access for everyone," Apple said.

Mac users will be able to control their machines using keyboards, rather than the mouse, choosing any combination of keyboard commands and shortcuts or even Apple's Full Keyboard Access option. The latter uses the new interface to navigate through the Dock, Menu bar, Window tool bars and palettes.

## Complete spoken controls

It's a comprehensive UI initiative: "The spoken interface can also be directed using a new feature called the viewfinder, a powerful tool that lets you control what is spoken, and enables you to interact with items on the screen using only the keyboard. You can press buttons, drag sliders, enable and disable check boxes, select radio buttons, drag, scroll bars, and many other on-screen controls," Apple said.

Users can set the Spoken Interface to use a single voice for every description, or assign a unique voice to each of the different elements the interface can manage. This makes it easy to distinguish between commands, content, item descriptions, item types, spoken menus or text. Unlike today's OS X voices, new controls will let users adjust pitch, speech rate and voice volume. Apple claims the interface has been "designed to be learned by exploration".

Spoken interface will integrate with Apple's existing Universal Access features, such as zoom view or greyscale display.

## Applications boosted

Apple's decision to implement the technology within its operating system means end users will be able to navigate applications using Spoken Interface. This is because developers will be able to get APIs from Apple to let them build their products to benefit from initiative – a massive boost for applications developers who want to comply with modern legislation that aims to make computing accessible to all.

Apple is working to make its own apps, such as the Finder, Mail, Safari, TextEdit, iChatAV and the Calculator more accessible through the technology. And doing this shouldn't break a developer's bank.

Apple senior product manager Chris Bourden told BusinessWeek that if developers build their apps in Cocoa they will "already have built-in over 90 per cent of the information required by Spoken Interface to make the program fully accessible".

## Legal need

A wave of accessibility rules is being enacted globally. In the US, a ruling called Section 508 requires that Federal agencies' electronic and information technology is accessible to people with disabilities, so Macs must meet this demand to secure lucrative government contracts.

Last year the European Commission introduced its two-year e-Europe programme, which aims to publish a set of standards for accessibility of information-technology products, and to create a network of national centres of excellence in universal design.

W3C director Tim Berners-Lee has said: "The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect."

More information is available at www.apple.com/accessibility/spokeninterface

**Jonny Evans**

## Big screen saving for Power Mac G5 buyers

Apple UK has initiated a deal offering customers up to £270 off the price of a 23-inch Cinema HD display when acquired with any Power Mac G5. The promotion – which was first launched in the US in mid-March – began March 30 in the UK and is available until June 26.

Apple UK's education customers can save £170 against the company's education discounted price. The saving is delivered as a rebate, a PDF of the coupon for which is available for download from Apple.

The Apple HD Cinema Display sports a 23-inch TFT active-matrix LCD that supports a 1,920-x-1,200 pixel resolution. The usual retail price for the 23-inch Cinema HD Display is £1,599 (including VAT).

The display features a wide (170 degrees) horizontal and vertical viewing angle and support for 16.7 million saturated colours. The ADC cable carries power, USB and digital graphics, and includes a two-port self-powered USB hub.

The Power Mac G5 and the Apple Display Monitor must be purchased from a participating reseller or a participating online Apple Store at the same time and on the same invoice. **MW**

## Tech events diary 2004

**NAB 2004**
**April 17-22**
Sands Center, Las Vegas.
The largest exhibition for broadcast, video, and effects producers.
www.nab.org/conventions/nab2004/

**Seybold Seminars**
**April 18-21**
Amsterdam. Event for media-technology pros.
www.seybold365.com/

**Drupa**
**May 6-19**
Düsseldorf. World-market print and publishing show.
www.drupa.com

**Macworld Conference 2004**
**May 17-18**
The Barbican, London
Macworld is bringing the Mac conference to the UK for the first time.
www.macworld.co.uk/conference

**The Broadcast Production Show**
**May 18-20**
Olympia, London
The UK's largest production and broadcast exhibition.
www.productionshow.com

**onedotzero9 festival**
**May 28-June 6**
Institute of Contemporary Arts, London
Digital moving image festival sponsored by Digit magazine.
www.onedotzero.com

**Internet World 2004**
**June 15-17**
Earl's Court, London
Premier UK show for Internet and IT-related markets.
www.internetworld.co.uk

**MacExpo Deutschland**
**June 17-19**
Cologne.
The German Mac show.
www.mac-expo.de

■ **For more events info, go to** www.macworld.co.uk/events

# Shake 3.5 anticipation grows

Apple is expected to announce Shake 3.5 at the National Association of Broadcasters (NAB) event this month.

Shake is an industry standard, used for compositing and special effects for film, video and high-definition TV (HDTV).

NAB runs from April 17-22. Apple is hosting an invite-only event called "Moving Pictures. Moving Sound. Moving the Industry" where the upgrade will be announced.

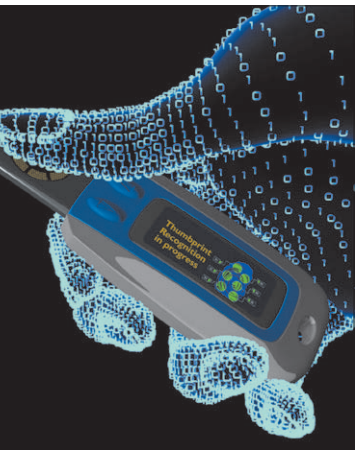
Rumour sites anticipate additional news from the company at the show. Anecdotal information suggests there would be little surprise if Apple introduces a sub-$1,000 compositing product there.

## New features

Features of Shake 3.5, according to AppleInsider, include new Warper and Morpher tools, better playback shape drawing, and QuickTime integration. Improved playback depends on better caching. Editors with lots of memory and fast processors will see the most benefit.

This year's Academy Awards was the seventh consecutive year that Shake has played a role in an award-winning movie. This year's award for Best Visual Effects went to WETA Digital for its work on The Lord of the Rings: Return of the King (left).

Apple CEO Steve Jobs said: "Shake is helping Hollywood film editors communicate their vision and deliver their art at an Academy Award-winning level. We couldn't be happier." **MW**




## Toshiba's tiny-drive vision

**Toshiba showed a variety of concept designs built to exploit its record-breaking 0.85-inch hard drive at CeBIT. These included intelligent spectacles that offer Web browsing and email access; a wristwatch PDA capable of video playback and videophone conferencing; a digital wallet with biometric security features; and a headset that stores an MP3 music collection.**

**None of the products are available commercially. Toshiba's 1.8-inch drives are used in Apple's iPods.**

# Enterprise security for Xserve

**Symbiot has announced its Intelligent Security Infrastructure Management Systems – or iSIMS (intelligent SIMS) – enterprise network security product.**

**This is a corporate defence system capable of responding to distributed denial-of-service and hack attacks by launching its own "appropriate" counter-strikes – and is hosted on the Xserve G5.**

**iSIMS has its own artificial intelligence. This will analyze an enterprise's typical network pattern, using this data to help it detect and respond to abnormalities. It works with existing firewalls, intrusion detection and prevention systems to offer network operators a highly sophisticated 24/7 risk-protection system, the company claims.**

**Symbiot president Michael Erwin said: "Our solution quickly and easily determines which events will have the most impact on their network operations, and we measure that impact in dollar terms."**

**The product fills a need for a hot product reliant on Apple technology that can drive that company's enterprise sales.** **MW**

# GIMP image-editor tweaked

**The open-source community has released GIMP 2.0, a free software tool for image manipulation.**

**The GIMP was originally available for Linux and Unix systems. It was developed by the community to fill the gap left by the lack of Photoshop for those platforms.**

**GIMP 2.0 has been in development for three years by a group of volunteers. Described by the group as the "most professional release of the GIMP ever", the developers add: "It is the first stable release that is officially supported not only on Unix-based operating systems, but also on Windows and Mac OS X."**

**Open-source support Web site Newsforge leader Bruce Burgess said: "When you launch version 2.0 you'll see a new look that's a huge improvement over the previous version's mundane and purely functional interface. The new design not only provides a polished and comfortable feel, it is also far more intuitive and friendly than its predecessor".**

**This release offers an improved user interface – dialog boxes can be grouped together in one window using a tabbed interface, for example.**

**Supported features include channels, layers and masks, support for colour levels, curves and thresholds, and more.**

**Because the software is free, GIMP 2.0 can be freely distributed and modified.**

www.gimp.org

# Mac developers get tools out

## WWDC highlights

**WWDC offers the Mac community insight into some of Apple's plans for the coming year. Here are a few highlights from previous events.**

**May 1998**
Apple announces its strategy for moving to Mac OS X.

**May 1999**
Apple announces new PowerBooks, and introduces Mac OS 8.6.

**May 2000**
Apple distributes a Mac OS X preview to developers, equipped with final API specs.

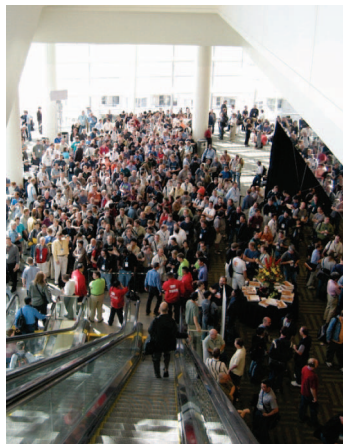
**May 2001**
Apple announces it will preinstall OS X with OS 9 on all new Macs – two months ahead of schedule.

**May 2002**
Apple CEO Steve Jobs pronounces Mac OS 9 "dead", and previews Mac OS X 10.2 Jaguar.

**June 2003**
Apple moved WWDC from its traditional venue in Cupertino to the Moscone Centre. The company introduces its Xcode developer tools and previews Mac OS X 10.3 Panther and the Power Mac G5.

**June 2004**
Visit www.macworld.co.uk for all the WWDC news as it happens.

WWDC2004
Worldwide Developers Conference



Apple's developer relations chief Ron Okamoto took time to speak with Macworld as the company's Worldwide Developer Conference approached – a seminal event in the Mac year.

The conference – known as WWDC – runs from June 28 to July 2 at San Francisco's Moscone Center, and is described by Okamoto as "the one time of the year when we talk about what we will be doing, and what developers should look at and be working on.

"We give them a week to look at absolutely everything – hardware, software, everything that touches the platform," he said, promising "a lot of content this year."

For developers, this is refreshing. Apple is notoriously secretive, but the WWDC information thaw offers its expanding developer community the chance to get hands-on experience from Apple's developer relations team.

"WWDC really is a hoot", Okamoto said. "It's nice because community-building is going on. You see people with open PowerBooks sitting in circles on the floor surrounding an Apple engineer, and they're looking at code samples. Face-to-face contact with Apple engineers is one of the most valuable things developers get from WWDC, they tell us."

Apple engineers leave their labs to meet with Apple's developer community, which has engendered over 10,000 native OS X applications so far, with more appearing each day.

"One of the biggest and most pleasing changes we have seen since Mac OS X has been the number of new developers moving to the platform. It's one thing that stands out over the last three years; last year almost half the WWDC attendees were first timers, we had a record crowd." Apple is also hosting more developers from Europe and the Far East.

Mac users are well-known for their evangelical zeal for the platform, and developers are no exception. A real excitement builds among the crowd of professional Apple-folk in the hours before WWDC, and then the fun begins.

"The door opens and you hear the stampede of feet, and that's all the guys running for the best seats."

### Evangelical support

Okamoto leads the Developer relations team at Apple. This group exists to offer support to anyone developing on the platform, providing partnership management, technical services and developer advice.

Developer Relations also supports Mac developers with marketing, technical and business advice, with help arranging distribution being a crucial role for the team. Evangelism is critical, too: "Going to those developer communities that haven't heard about OS X, and hopefully spreading the word," Okamoto said.

Apple strives to please all its customers, says Okamoto. And the company's congregation is growing. Crucial to this is the way OS X has attracted attention from hitherto excluded markets: "We're seeing a growth in the number of developers attending WWDC from the Java, Unix, Linux and our traditional cross-platform communities," Okamoto explained.

Developers are becoming mature. Focus at this year's show will move away from porting existing applications to Apple's cutting-edge platform, and towards refining those that have already arrived.

"Developers such as Adobe, Macromedia and Microsoft are on their second or third generation of Mac OS products, so we help them stay state-of-the-art in their development," observed Okamoto.

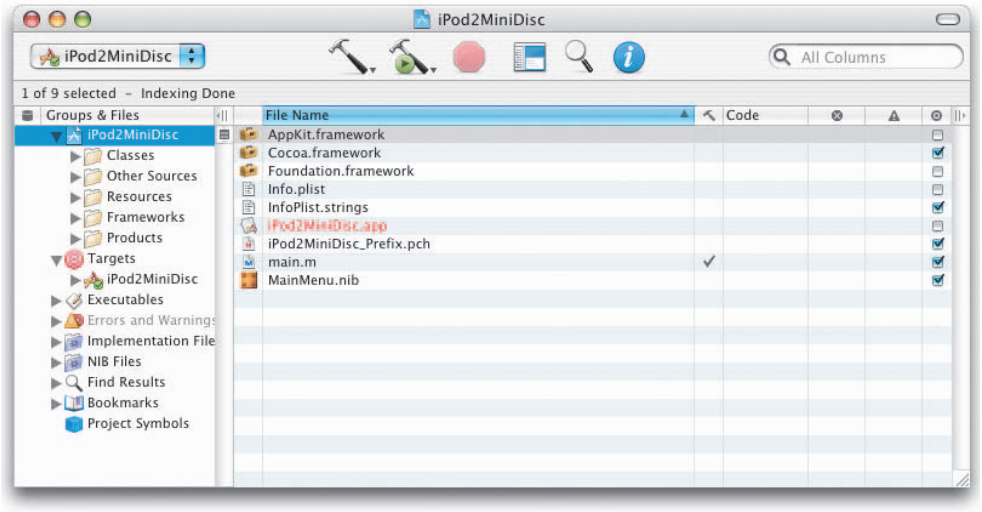
## Xgrid 2 works lazy chips

Apple has released Xgrid Preview version 2. Xgrid is Apple's homegrown Mac-clustering software. It transforms any group of compatible Macs (running Mac OS X 10.2.8 or later) into an affordable supercomputer installation. A key advantage of this software is that it's able to manage such "ad-hoc" networks. The software means researchers can use what would otherwise be idle time on their processors to run batch and workload processing.

"Xgrid's support for both desktop recovery and dedicated nodes enables you to use all your available resources for a problem, with a minimum of time and money," says Apple.

New features include an Xgrid command-line tool for submitting and monitoring jobs; support for Message Passing Interface (MPI), which lets Xgrid configure and launch executables linked against MPI libraries. The new release also offers "numerous" bug fixes, Apple says.

The software is available for download from the company (though registration is required). It requires 128MB RAM and Mac OS X 10.2.8 or later. Apple has also released a guide to Xgrid technologies in PDF format. www.apple.com/acg/xgrid/




"In general, the first products were all about making code run on OS X. Now developers are optimizing code for best performance on the platform, for G5 processors, or doing things with new technologies such as Rendezvous. It's really about refining what they have."

Reports of better-than anticipated Xserve sales and Apple's ground-breaking deal with Virginia Tech, in which the latter built one of the world's fastest supercomputers at a fraction of the cost of existing machines in the category, have had a positive impact. Apple is introducing sessions dedicated to the needs of science and biotech as well as enterprise computing users this year.

Enterprise users? Okamoto explained: "Since the news about Virginia Tech's cluster broke, we have been hammered with requests from all different directions – government, education and private industry asking how they can do this."

In numerous reports appearing as WWDC approaches, it's clear that Apple is preparing to make a bid to ship to enterprise. A positive response from advanced users in the high-end research sectors has bounced interest in business. "There are connections between the supercomputing and enterprise IT areas," Okamoto said.

Mac OS X offers Unix (based on the BSD (Berkeley Software Distribution) and Java support built-into the OS. Apple continues to use open standards, and works with open-source developers. All these feature within the 'must-have' list for enterprise computing.

Okamoto explained: "Enterprise developers have gone into Mac OS X over the past year, and they have been kicking its tyres. I can tell you, enterprise developers are coming back, wiping their brow and saying: 'Wow! We just figured it out. You guys have the best price/performance offering on any platform, tell us more."

The introduction of Mac OS X signalled a major change in Apple's strategy. Not only did it usher in a Unix-powered age, it also showed the company as willing to support open standards and work with the open-source community. Apple's Web browser Safari, for example, uses the open-source Konqueror HTML engine, which Apple "innovated on top of" to make the browser.

In creating Safari, Apple also made improvements to the original KHTML source code, which were returned to the Konqueror project.

"It's about being a good member of the community. We made sure our code improvements were returned so the community could take advantage too," he explained.

## Open standards

This is no small step. It is a major change in Cupertino's mindset. "We have this mentality now of taking the best things we can find in the open-source community, and making that a starting place for future technologies we want inside the OS."

The move to open standards and open source also means developers – new and old – get more "options for innovating on Mac". Because so much is based on ongoing work by huge disparate development communities committed to open standards, a side-effect is greater compatibility.

Mac users see faster product development and "more opportunities to get differentiated products across OS X", he said.

"We have been able to grow the solution set on OS X well over the last three years". OS X had over 10,000 native applications available at interview time. " It's not just what we have done with OS X, it's the BSD Unix core; it's our work with open standards; it's that we have Java and Unix inside the OS."

Developers are impressed because they need such resources to build what they want. Its capabilities mean they talk "cool ideas" and get "energized," Okamoto said – and today's developers are "at that stage" of enthusiasm.

"Apple is out in the developer community, being a good citizen and showing our support the way we can as a platform company. Not a lot of other companies can do this, so we have a bit of a unique position there."

This developer-focused Apple introduced new tools for that community at WWDC last year – Xcode. Okamoto says developers have "embraced" the toolkit.

Declining to name names, citing the need for secrecy, he discussed its adoption: "Many of the top developers are working with Xcode. Not just testing it, but doing real work with it. We know that some segments of the Mac market have transitioned completely to it for applications-building".

Apple is exploring its own advantage. To build Xcode it first looked at how Mac applications were built, and then "created true efficiencies" within that pattern, including real-time compiling. This means better workflow and more productivity for developers.

Signing off, Apple's developer relations chief said: "All these things are nothing but good news for us. We want people to come to WWDC, see what's happening there and get involved." **MW**

**Jonny Evans**

## Apple in the news

**Apple is attracting ever-more interest within market sectors it didn't reach before. Key moments in March:**

**Government Computer News** reports "Apple Xserve G5 challenges Linux clusters," and cites Apple's focus on security and its relationships with the open-source community to bear this out.

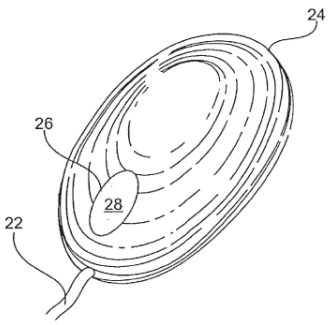
**Bio-IT World Magazine** declares the new Apple Workgroup Cluster for Bioinformatics winner of its Best of Show award at its prestigious life-sciences show.

**Internet News** reports Apple's new Xserve G5 is winning interest – and sales – among content-delivery and telecommunications companies.

**Federal Computer Week** says the Mac platform is "starting to look corporate". It points to the Mac's built-in security and FileVault features as part of Apple's new-found attraction.

**Microprocessor Report** says the IBM/Apple G5 chip gives the company a clear advantage against chips from Intel or AMD.

***Alternative rodents***
*MacMice's The Mouse is the closest thing to an Apple mouse with multiple buttons and a scroll wheel. It has an 800dpi resolution, compared to Apple's current 400dpi – making it more accurate and zippier in movement.*




***Optical allusion***
*The possible new Apple mouse – shown here in the patent-application drawings – features an optical touch-pad that includes an optically operable window and an optical sensor "configured to work through the optically operable window so as to detect movements of a finger in close proximity to and moving across the optically operable window."*

# Apple's rock and scroll

As stated in Macworld's review of alternative mice for Mac systems (May 2004), many people find Apple's one-button mouse to be pretty but less practical than one with multiple buttons and a scroll wheel. Even Mac originator Jef Raskin, who chose the one-button design, has since admitted this was a mistake – instead favouring a three-button model with buttons labelled Select, Activate and Grab.

The original argument is that people find more than one button confusing. One button is also thought to be more ergonomic. A recent study of over 6,000 computer users at the National Institute of Occupational Health in Copenhagen showed that it was mouse and not keyboard use that accounts for almost all repetitive stress injuries.

"I figured that if there was only one button, there would never be any question on what you have to press," said Raskin recently. But there's little doubt that the scroll wheel and multiple buttons are the preferred additions for mice today.

Apple's position could be set to change, as it has recently published a patent application – originally filed in September 2002 – for a mouse that has an optically based scrolling feature. This turned up last year as plans for a a rotary dial.

Instead of a traditional scroll wheel, the optical touch-pad appears to be based on the iPod's scroll-wheel or iPod's mini's click-wheel, which would make the touch-pad surface tap sensitive. The peripheral device includes "one or more buttons configured to provide a clicking action for performing actions on the display screen".

The patent application explains "the peripheral input device includes a housing and an optical touch-pad carried by the housing. The optical touch-pad is configured to translate finger motion into movements on the display screen."

The optically operable window makes up a "substantial" portion of the translucent housing.

Apple admits that a scroll wheel "saves time and steps", but adds that in most cases, the scroll wheel and switch require a separate mechanical component to be mounted in the mouse with portions of it protruding out of the mouse housing to allow a user's finger access".

"Although mice designs such as those work well, there are continuing efforts to improve their form, feel and functionality," states Apple in the patent. "For example, it would be desirable to provide an improved scrolling feature for a mouse that is aesthetically pleasing to the user. The scroll-wheel is not aesthetically pleasing since it protrudes above the mouse housing.

"Furthermore, the scroll-wheel of the mouse can only be manipulated in one direction, and thus the use of the scroll wheel becomes counter intuitive when scrolling in a different direction in the GUI. In addition, it would be desirable to provide an improved scrolling feature for a mouse that allows the mouse to scroll directly without holding down or physically moving a wheel, button, switch or the like."

Many Apple patent applications never see the light of day, but it's clear that the company is willing to bend its strict one-button ethos to include further functionality while avoiding user confusion and maintaining aesthetics. **MW**

**Simon Jary**

## Apple patent protects iPod interface

**Apple hopes to patent the iPod user interface. An application describes a: "Graphical user interface and methods of use thereof in a portable multimedia device, a method, apparatus, and system for providing user-supplied configuration data… a hierarchically ordered graphical user interface.**

**"A first order, or home, interface provides a highest order of user-selectable items each of which, when selected, results in an automatic transition to a lower order user interface associated with the selected item. In one of the described embodiments, the lower-order interface includes other user-selectable items associated with the previously selected item from the higher order user interface."**

**The three named inventors are Jeffrey Robbin, Apple CEO Steve Jobs, and Timothy Wasko.**

**Robbin was the lead developer for Casady & Greene's (C&G) SoundJam software, which encoded and managed digital music. Apple acquired the application from C&G in 2002. Wasko worked with Jobs at NeXT. He became the visual-interaction designer at Apple after Jobs' return in 1997.**

**According to patent and intellectual property law specialist Steven Frank, it is not unusual for a company to patent a user interface: "Apple could use the patent to prevent other companies from making iPod knock-offs, or as a way of maintaining control over how the iPod talks to other devices."**

**"It will take between two and three years for the USPTO to decide whether it will grant Apple's request, meaning the patent could be granted about six months from now," he added. MW**

**Laura Rohde & Karen Haslam**

# Song-swaps 'no threat'

**62%** of legally acquired music downloads are burned to CD.
Source: Ipsos-Insight

Two US universities have released research that flies in the face of music industry claims that file-sharing hurts CD sales.

The wonderfully named Professors Felix Oberholzer at Harvard University and Koleman Strumpf of the University of California got together to track music downloads across 17 weeks in 2002. They matched their data on file transfers with music retail sales.

They say even large amounts of file-swapping had little effect on album sales, calling it "statistically indistinguishable from zero", and adding that their results dispute claims that file-sharing has caused declining music sales.

Agreeing that vast quantities of downloads (over 1 billion each week) occur, they said most sharers would still not have bought the music they steal: "At most, file sharing can explain a tiny fraction of music sales decline". They add that other affected industries continue to prosper, despite file sharing.

They point to other factors: poor economic conditions; fewer album releases and competition from other entertainment formats. Media consolidation – in which TV and radio channels are owned by an ever-shrinking pool of companies – may affect sales, they say, as playlists become homogeneous, limiting artist exposure and reducing "music variety". Record-industry litigation may also have generated a "consumer backlash," they say.

Pointing out that music sales fell in the late 1970s and early 1980s, the researchers said that sales in the 90s may have been generated through format migration, as consumers replaced their vinyl with CDs. They observe that major labels rely on a small number of mass-market hit albums for their business.

"For these albums, we find that the impact of file-sharing on sales is likely to be positive, leaving the ability of major labels to develop talent intact."

Agreeing that smaller artists may be hurt by file-sharing, the researchers pointed out that labels don't rely on income from such acts. Most artists in this category make their living from live shows and merchandise.

The researchers used data from 1.75 million downloads over 17 weeks in late 2002. On average, users logged on twice in the period and took 17 tracks, though some used file sharing more. They tracked downloads affecting 500 albums from different genres and compared retail sales to downloads. "It takes about 5,000 downloads to displace sales of one physical CD," they said – "a tiny contribution" to the slide in sales, despite downloading, they added.

Oberholzer likens file sharing to radio – a promotional tool: "Users almost always download a couple of songs – if they like them, they buy them. If I can get people to download songs from an album, maybe they will buy it," they said.

The Recording industry Association of America dismissed the findings, telling Silicon.com: "Well-respected groups and analysts have determined that file-sharing has adversely impacted the sales of CDs. Our own surveys show that those who are downloading more are buying less."

Sharman Networks CEO Nikki Hemming said: "Consider the possibilities if the record industry co-operated with companies like us. But the record industry continues its narrow-minded strategy of litigation and legislation." **MW**

**Jonny Evans**

- **Apple's iTunes may become as powerful as MTV with the music industry, digital-media moguls said at the recent Digital Hollywood Conference.**
- **Major music labels are taking action against MP3 file sharers in Europe.**
- **Napster has hired former Radio 1 head of music Jeff Smith as programming director for its new UK music download service.**
- **The UK's largest live music promoter, The Mean Fiddler, will launch its own music-download service in April, responding to "market demand for legal downloads".**
- **Recent Ipsos-Insight research shows that legal US music downloads tripled in 2003, with most buyers aged between 25-54.**
- **Sony will launch a digital-music service, Connect, in France, Britain and Germany in June, using Sony's own media format.**
- **Virgin is loaning premium air travellers iPods pre-loaded with music provided by Virgin Megastores.**
- **EMI is slashing 1,500 jobs and one fifth of its recording artists, as well as outsourcing most of its CD and DVD manufacturing in response to falling sales. Niche artists face the axe.**
- **The Fraunhofer Institute has built a way to reproduce surround sound that works with MP3s – with initial products supporting this due in July.**
- **BuyMusic.com plans to integrate its services with parent company, Buy.com, following low sales.**

## Apple just won't let it be

The Apple Computer versus Apple Corps drama continues, with a US judge declaring that the case should be heard in California.

District Judge Ronald Whyte has denied a motion to dismiss the Californian action filed by Apple Corps. The two sides are trying to get the courts to decide if the case should be heard in California (which Apple prefers), or London (which the surviving Beatles want). Jurisdiction was the topic of the hearings before an iPod-owning judge in the UK High Court in February. No decision on that case had been declared as Macworld went to press.

In 1991, Apple Computer agreed to use the Apple brand for computers, data processing and telecommunications, while the Beatles could use it for music.

In the UK courts, Apple argued that its iTunes Music Store, which the Beatles claim contravenes the 1991 agreement, does not do so because it is a means to transfer content as data.

Apple Computer wants Judge Whyte to rule that it has not violated the deal. It also requests the suit be heard in California, as Apple Corps has filed against Apple Computer in California three times in the past. Judge Whyte said Apple Corps' decision to file three times before in the state made it "immensely reasonable" for Apple to defend itself in California again. **MW**

# RenderMan Pro goes X

## One comes in

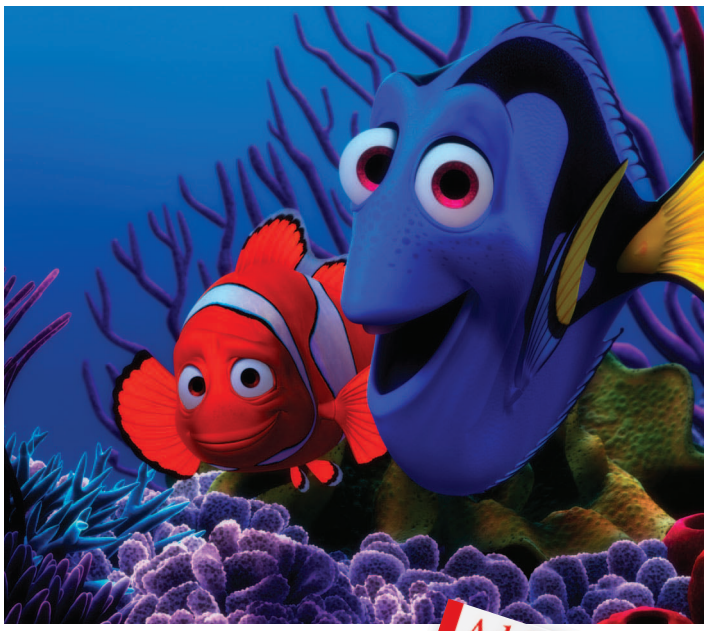
Pixar has released RenderMan Pro Server 11.5.3 for Mac OS X 10.3 and 64-bit Linux platforms – bringing it to Mac OS X for the first time. G4 and G5 Power Macs are both supported.

RenderMan is a professional 3D animation product, and is used to provide the 3D rendering and animation for Pixar's own movies. Pixar says it's "the highest-quality renderer available anywhere".

RenderMan offers a powerful shading language and anti-aliased motion-blur, and includes the latest release of Pixar's RenderMan 11.5, which features technology developed while creating Pixar's Finding Nemo movie.

RenderMan Pro Server costs $3,500 and requires Mac OS X 10.3.1 or higher. UK pricing is to be confirmed. Pixar's CEO is Apple CEO Steve Jobs. The company announced plans to port RenderMan to OS X at WWDC 2003, though it didn't officially announce plans until the autumn.

Weta Digital visual-effects supervisor Joe Letteri said version 11 of the product gave his company the "breakthrough we needed to put the finishing touches on The Lord of the Rings: The Two Towers".

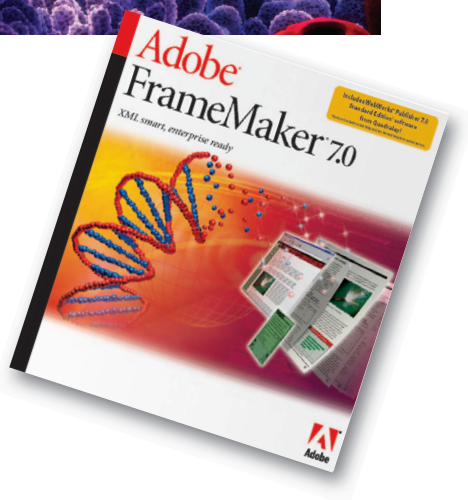


## One goes out

Adobe is discontinuing Adobe FrameMaker for Mac on April 21, 2004. The XML-based long-document DTP tool will continue to be available on Windows and Solaris platforms "Complementary and fee-based technical support for FrameMaker for Mac will be available until April 21, 2005," the company said.

Adobe last updated the Mac version two years ago. It says the decision reflects market conditions: "We have seen the Windows platform in particular become a larger share of FrameMaker sales."

"Some customers have requested an OS X version of FrameMaker, but it's really hard to justify on a business level." **MW**




## Watch this disk space

**LaCie has announced its Flash memory watch. The black LaCie Data Watch supports backwards-compatible USB 2.0, and draws its power from the USB bus – though the watch is powered by a battery with a promised three-year life. It offers 128MB of storage. The cross-platform timepiece also functions as a bootable system disk. It costs £57 (including VAT).**

www.lacie.co.uk

**Claims Plus says around 100,000 notebook computers were nicked from vehicles in 2003 – over 270 every day.**

# News items on this month's CD

On the CD this month in the News folder, you'll find applications for music-making, spam prevention and an innovative monitoring utility from Inferiis.

**Dent du Midi** converts MIDI files into Apple GarageBand files. It takes standard MIDI files and generates separate files for each track, which are suitable for dropping into GarageBand as loops or tracks. It requires Mac OS X 10.2.8 or later.
http://homepage.mac.com/berynaldo/ddm/

**GB Import** ($15) imports standard exs files (as used by eMagic Logic) into GarageBand as new Software Instruments. It can be automated in respect to copying, creation and naming of instruments. Mac OS X 10.2.8 or later is required.
http://andydrabble.users.btopenworld.com/grbandassistant/

Inferiis software's **KeepAnEye 1.5** is a multipurpose monitoring and notification utility. It watches many information sources, organizing them into stickies-like files that can be placed anywhere onscreen. Costing $12, it monitors and displays: RSS feeds, eBay auctions, pictures, Web pages and more.
www.inferiis.com

Finally, a new release for Web designers from Railhead Design, **SpamStopper 1.5**, is a utility that hides Web-site-hosted email addresses from email-harvesting spiders. Essentially, it encodes the text of an on-site email address so it doesn't look like an address, and spambots don't find it. The software is free.
www.railheaddesign.com

# Aspyr shows its big guns

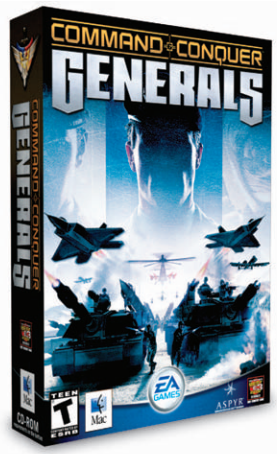
Aspyr is preparing to unleash its Mac conversion of Command and Conquer Generals (originally from Electronic Arts), which offers Mac gamers the chance to be the "ultimate modern warfare general".

The action features three sides: the US, China and the Global Liberation Army. Tensions between the three are running high, and though leaders on all sides claim no interest in escalating the situation, satellite images betray their warlike agenda.

Each side has its advantages: the US has the most advanced military forces, while the Chinese army is well financed with access to modern technologies and vast troop numbers. The elusive Global Liberation Army is outgunned by these two foes, but is prepared to resort to terrorist attacks – bio attack, sabotage and suicide bombings are all stock in trade for the politically motivated GLA.

Players control one of the three vying groups, with the action taking place across a fully 3D environment. Up to eight players can compete in multiplayer mode, both online using GameRanger, or over a LAN (only Mac-to-Mac play supported).

The £39.99 (including VAT) game requires OS X 10.2.6 or later, a G4 or G5 running at 1GHz or faster and at least 256MB RAM. Aspyr plans to distribute the game on DVD, so a DVD player will be needed to install it. **MW**




## Epic Games in merger deal

**Epic Games has merged with America's Army developer Scion Studios in a move that doubles Epic's in-house development capacity.**

**Michael Capps, former CEO of Scion Studios, will lead Epic's development and production management in his new role as president of Epic Games. Tim Sweeney remains chairman and CEO of the company. Before founding Scion Capps designed and produced America's Army, the hugely popular multiplayer US Army game built with Epic's Unreal Engine technology. Epic titles reach the Mac through the aegis of key porting houses MacSoft and Aspyr.**

## New Feral demos

**Feral has released new demo versions of a number of its games, including: Warrior Kings, Ghost Master, Total Immersion Racing, and Rayman 3. The new demos integrate the latest available patches and updates, so the company promises better performance when they test these games. You'll find more info online at** www.feral.co.uk.

# Massive Assault 'imminent'

**UK developer Virtual Programming is adding the finishing touches to three new titles: Virtual Grand Prix 2, Victoria, and Massive Assault. The company has six more projects on the table, including Mac ports of Gangland and Spartan.**

**Virtual Grand Prix 2 (£17) is a car-racing game that ships in April. In Victoria players are the eponymous UK monarch controlling nations as they progress through the industrial revolution into the 20th century.**

**Massive Assault is a 3D real-time strategy title with cross-platform multiplayer support. As leader of the Free Nations Union, players must defeat enemies on different planets in battles across land, sea and air.**

**Spartan players control the growth of ancient civilizations, while Gangland is an arcade game that casts players as mobsters in a combined RTS, RPG and sim title. All games cost £25 where prices have been set, unless otherwise stated.** **MW**

# Yexi's free fight stunner

**Independent software developer Fernando Covett has made Yexi – The Interstallar Adventure available for free on Mac OS X. He's done this to mark the release of his brand-new arcade puzzle game, Pharaoh's Gold. Both titles are on this month's cover CD.**

**Yexi is a Star Trek-inspired strategic space simulation that puts players in charge of a spaceship, responsible for general maintenance and mission-management in a six-scenario quest to save the galaxy. Ultimately, players lead an armada against a massive enemy space-fleet.**

**In Pharaoh's Gold, players must retrieve all the stolen gold and replace it in order to save the world and uncover the mystery that lurks at the heart of the game. The full title costs $12.50.** www.angelfire.com/mac2/yexi/

## Business briefs

- **HP CEO Carly Fiorina has denied published claims that HP plans to open 1,000 retail outlets in Chinese cities, saying the company plans to build relations with 1,000 existing retailers there.**
- **A new attendance-calculation method showed 32,409 people attended Macworld Expo San Francisco this year.**
- **Central London Apple reseller The Square Group has been declared an Apple Solution Expert in Publishing.**
- **ICANN is considering new top-level domain proposals for specific industries: .jobs; .travel; .mail; .mobi; .tel; .post; .cat; and .xxx.**
- **Roxio expects its Napster division to see $5.5 million Q4 revenues ($3.6m Q3). Its software arm targets $26m revenues.**
- **Apple may lose its logo-registration dispute with China's Trademark Appraisal Committee (TAC) and Guangdong Apples, because the logo in question doesn't have a bite out of it.**
- **Eastman Kodak is suing Sony for alleged violation of ten digital-camera patents. A similar 2001 suit against Sanyo saw Sanyo license these patents.**
- **Digital video-editing company Media 100 has filed for Chapter 11 bankruptcy protection, while Optibase concludes its $2.4 million buy-out of the company.**
- **Adobe CEO Bruce Chizen took $4.2 million from exercising stock options in 2003. His bonus climbed from $233,113 in 2002 to $941,850 last year.**

# MS 'abusive' – official

After five-years, the European Commission has told Microsoft it abused EU competition laws by tying its media player with Windows and by "deliberately restricting interoperability between Windows PCs and non-Microsoft workgroup servers".

Microsoft has been fined €497.2 million (£331m), but will appeal – a process that might take five years. The Commission said: "Microsoft's conduct has significantly weakened competition in the media-player market". This market is crucial now as digital music-distribution services launch in Europe, and Microsoft attempts to establish its media player as the market standard. While RealNetworks said it "welcomes the opportunity to compete on a more level playing field" in Europe, Apple refused comment.

Europe condemned Microsoft's "illegal conduct", saying it let it "acquire a dominant position" in the workgroup server market", almost destroying its competition. Microsoft must now offer a Windows Media Player (WMP)-free version of Windows and offer competitors information to help them make compatible server products.

### Windows won't work

Microsoft spokesman Jim Desler said: "We can remove the code, but then you don't have a fully functioning OS."

Brad Smith, Microsoft's senior lawyer, warned some European software makers' products won't work without WMP. Analysts dismissed Microsoft's claims. Gartner's David Smith said: "Stripping Windows of WMP won't affect Web developers, who already deal with the reality that there are multiple media players out there."

Ten US House of Representatives members wrote to EU Competition Commissioner Mario Monti to call the fine "unnecessary". They said the US had already addressed and settled these issues in 2002 when it ended its antitrust case, telling Microsoft to engage in certain remedies. These measures were criticized as not going far enough. "The final 2002 judgement established a comprehensive regulatory scheme that resolved past conduct and created a detailed compliance structure to address future competitive concerns that might arise," they said. However, Europe believes Microsoft's bad behaviour here is "still ongoing".

Critics of the EC decision said the fine would discourage US companies from marketing products here and that it would undermine the global competitiveness of US firms, impair innovation, and cost US jobs. "Europe's decision to write its own rules could force software companies to either write Windows-based software to the EU's standard – essentially dictating US customer experience – or write two versions for each piece of software, one for the US and one for the EU," they warned.

Microsoft's chief European lawyer Horacio Gutierrez called the decision "unprecedented and inappropriate", as Microsoft's business is already regulated – by the US government. "Microsoft must respect EU competition rules in the same way European companies must respect US law when operating there," the Commission replied.

Citing Microsoft's need to respond to consumers in product development, CEO Steve Ballmer said he was "disappointed" at the punishment. The company had proposed a settlement which "would have offered more choice to consumers", he said.

Announcing the punishment, Monti said: "Dominant companies have a responsibility to ensure the way they do business doesn't prevent competition or harm consumers and innovation. This restores the conditions for fair competition and establishes clear principles for the future conduct of a company with such a strong position". **MW**

**Karen Haslam**

# Adobe hits record earnings

Adobe reported record first-quarter earnings with 43 per cent revenue growth in the quarter, and indicated that many in its pro publishing markets remain to make the migration to OS X.

Adobe CEO Bruce Chizen told Dow Jones: "Many people are still evaluating the move to Apple's OS X operating system, which Creative Suite requires.

"Other customers are taking extra time to decide which version of the product to buy and to debate the merits of the suite compared with individual Adobe products, such as Photoshop and Illustrator."

Adobe achieved record revenues of $423.3 million, compared to $296.9 million reported for the first quarter of fiscal 2003 and $358.6 million reported in the fourth quarter of fiscal 2003. This exceeded Adobe's revenue target of $380 to $405 million.

Chizen said: "Our outstanding quarter was driven by strong global revenue from the new Adobe Creative Suite and record revenue from our Intelligent Documents business. This highlights the increasing relevance of Adobe technology platforms to creative professionals and enterprises worldwide."

He added: "Given the impressive start in Q1, we have raised our fiscal 2004 financial targets." Adobe aims for $365 to $385 million revenues in the second quarter, and has raised revenue targets for the year from $1.475 to $1.5 billion.

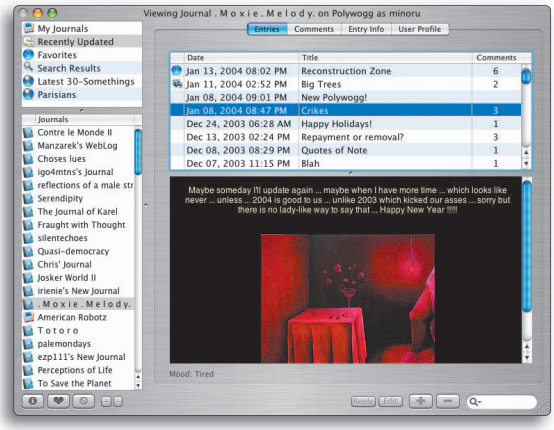
Chizen added that first-quarter results were strong overseas. Adobe received 57 per cent of its revenue from outside the US in the quarter, compared with 50 per cent last quarter. **MW**

# Blog service goes X

Polywogg from Rainjul is a free journal/blog service for Mac OS X Panther. The software allows users to include movies, digital photos from iPhoto, audio files, PDF documents, rich text documents, HTML pages and freeform formatted documents in their online journals. It also enables users to use their iSight or other video camera to create video journal entries. Polywogg users can manage multiple journals, or multiple users on one subscription can maintain individual journals. Subscribers can create up to five journals.

Polywogg also features Dynamic Journal Groups technology that allows users to create a set of geographic and demographic search criteria and find journals that could be of interest as they appear.

**www.polywogg.com**




## Let there be light

The NightOwl keyboard and mouse are designed for people who could happily spend all night on their Mac, with the lights off. The USB keyboard and mouse feature five levels of illumination, thanks to several LEDs placed under the keypads and in the mouse. Illumination is controlled with a couple of hot-keys.

The keyboard and mouse come in four colours: clear (pictured), aqua blue/lilac, grey/purple, and bone white. They are ergonomically designed, feature a split keyboard, and incorporate a wrist rest. They are also splash-proof, according to NightOwl. They cost £60 from the Gadget Shop.

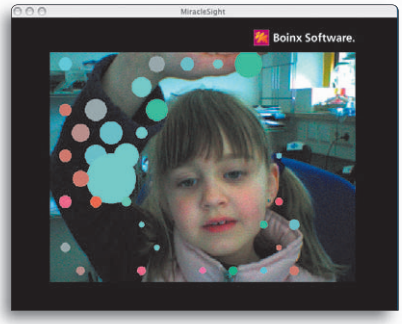
**www.gadgetshop.com**

# New iSight toy released

Boinx has unveiled a new toy for the iSight webcam. MiracleSight is a free screen-saver that uses the iSight (or any webcam) to watch for movement in front of a Mac. It reacts by drawing bubbles, playing a sound file, or speaking – great for freaking out work colleagues.

Boinx has also updated its iStopMotion animation tool to version 1.3, adding the ability to turn video upside down. Boinx says this feature supports animation of really small objects because holding the camera upside down enables it to get closer to the action. The update also allows the sound to be turned off when frames are captured during time-lapse recordings. iStopMotion is free.

**www.boinx.com**




***Not just for kids***

*MiracleSight lets users see their movements translated on-screen as coloured bubbles.*

## High-speed media-reader

Zio Corporation has released a new range of £24 Dazzle media-card readers – the Hi-Speed ZiO family.

A transparent safety ring around the reader protects the USB connection when in transit, shields media while in the device, and enables the reader to sit up on the desk.

The device is hot swappable – meaning media can be removed and replaced without needing to reconnect the reader – and it is compatible with all media formats including xD, Smart Media, MMC, Memory Stick, Compact Flash I & II, Microdrive and Secure Digital.

The reader connects to a Mac via USB 2.0, and is also fully compatible with USB 1.1.

**PC World, 08702 420 444**

### The world's your oyster

EarthDesk replaces a desktop background picture with an animated, real-time rendered image of the Earth, continuously updating in the background while you work. The software supports 11 different map projections, and renders accurate sun, moon and city lighting. The EarthDesk 2.5 update adds full map centring and zoom support for map projections. Single-user copies of EarthDesk cost $20.

www.timepalette.com

### Stand and be counted

The IceStand from Macally is a tilt-&-swivel computer/monitor stand with keyboard and mouse storage trays. Macally claims that using IceStand will reduce the risk of neck and eyestrain as it can be raised and adjusted accordingly. It also offers cable management and a concave area for stationery storage. It costs £12.

AM Micro, 01392 426 473

### Souped-up Safari

Safari Extender from Batista adds extra functionality to Safari. The order of Tabs can be rearranged; a complete set of tabs to be saved and loaded; cut and pasted images can be turned off; text size can be increased or reduced; and it is possible to print a page with the title, Web address, and time stamp visible. As shareware it costs £6.

www.batista.org

### iSight light 'fits tight'

Griffin is shipping the SightLight – a light made for Apple's iSight that slips onto the front of the camera and beams a "warm bright glow" onto the user. According to Griffin, it evens out the shadows caused by inconsistent directional room lighting. Auto-light mode senses the amount of ambient light and adjusts SightLight's output accordingly. The device costs £30.

AM Micro, 01392 426 473

*continues page 38*

### SymmetryWorks tweaked

Artlandia has released SymmetryWorks 3 – its Adobe Illustrator plug-in for creating patterns, designs and art. SymmetryWorks 3 supports vector paths, brushes, gradient meshes, type objects, and raster (bitmap) images. Users edit Photoshop, PNG, JPEG, and GIF images in the motif, and the plug-in immediately applies the edits to all parts of the pattern. The update offers enhanced support for transparency, the ability to use Illustrator's new 3D effects, and advanced typesetting. It can be downloaded for $215.
www.artlandia.com

### Trunk and orderly

Autosafe is a lockable steel safe designed to hold a laptop computer and keep it secure when in a car. The autosafe secures to the inside of a vehicle by a steel rope system, and comes in four sizes. It features a full foam lining to protect the contents, and anti-slip velcro fixings to prevent movement in transit. Prices start at £198.
AM Micro, 01392 426 473

### E-cards software for Mac

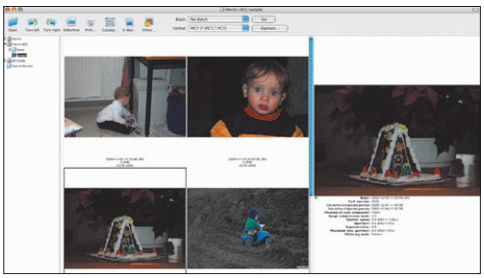
A Mac version of Nova's Art Explosion Greeting Card Factory is now available. It allows creation of greeting cards, including electronic greetings and photo cards. The software comes with 3,000 exclusive greeting cards and customizable projects, 45,000 graphics, 500 colour photographs, and 300 fonts. It is possible to import images, and a number of text effects are available. It costs £49.
0800 289 041

### New Piranesi tutorials

Informatix Software International has created a new set of free movie tutorials that demonstrate how to get the best out of Piranesi – its specialist 3D painting tool. The tutorials show some of the key features of Piranesi, and demonstrate how to use them in combination to generate painting effects. A free EnSharpen Decoder is required to view the movies.
www.informatix.co.uk

# GraphicConverter updated

LemkeSoft has updated GraphicConverter, its graphics manipulation and conversion utility for the Mac, to version 5.0.1. It is $35 shareware. GraphicConverter opens and converts most types of graphics file – including corrupted ones, according to Lemke. A folder of images can be dropped onto GraphicConverter and viewed like slides on a light table. The converter also includes features for image manipulation – including resizing, adjusting colour balance, colour depth, contrast, resolution and sharpening.



GraphicConverter can also optimize images for the Web. If an image is required to load faster GraphicConverter can split it into multiple parts for reassembly in a Web table. It's also possible to make images load faster by decreasing file size, limiting the number of colours in GIF files, or making GIFs transparent.

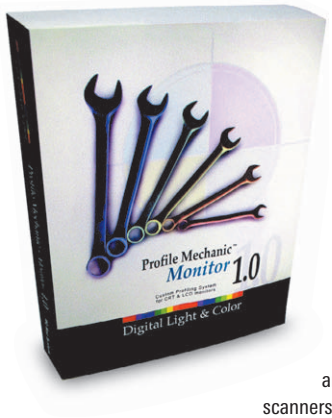
GraphicConverter can batch process files for conversion or editing of multiple images. It also incorporates a full suite of powerful AppleScript commands so users can write scripts to automate repetitive routines.
**www.lemkesoft.com**

# New colour-management tools

Digital Light & Color has introduced a new line of colour-management tools. The line consists of Profile Mechanic-Monitor for calibrating monitors, and Profile Mechanic-Scanner for calibrating cameras and scanners.

According to the company, Profile Mechanic-Monitor measures a monitor's primary colours and generates a colour lookup table to contour the monitor's output to a standard gamma and white point. The user follows a set of on-screen instructions guiding them through setting the monitor controls.

The Profile Mechanic-Monitor software includes aids for setting monitor brightness and colour controls, and allows specification of gamma and white point. It costs $179.95 online.




Profile Mechanic-Scanner uses 48-bit profiles to calibrate scanners and cameras to achieve accurate colour and improved tonal reproduction for digital images. It also offers step-by-step instructions for set-up of an input device.

Profile Mechanic-Scanner measures the ability of an input device to capture a set of known colour values contained in a target, and stores that information as a standard ICC profile. It is compatible with numerous industry-standard targets including the IT8, HCT, and ColorChecker targets for use with scanners, and the ColorChecker and ColorChecker DC targets for use with digital cameras. It costs $60 online.
**www.dl-c.com**

## Digital Vision forwards Motion

Digital Vision has added nine royalty-free titles to its Motion collection of photography, illustration, music and moving footage.

The new titles include Beauty, Colourbox, Graphic Loops, Organic Elements, London Lights (left), and London Moving.

A DVD of images costs £703 including VAT.
**www.digitalvision.com**

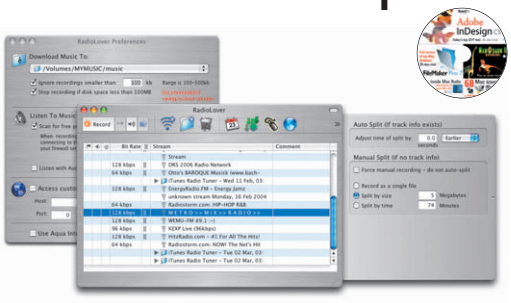
# Final Vinyl gets waveform boost

Griffin has added waveform editing and Panther compatibility to its free recording software, Final Vinyl. Final Vinyl software allows the recording of vinyl records using the Griffin iMic or PowerWave and a turntable – no additional hardware is required to connect the record player directly to an iMic or PowerWave.

Other new features include faster performance, improved reliability, and lower CPU usage, according to Griffin. The company says its Waveform display makes Cue Marking easier and more accurate – a user can set the beginning and ending points of songs, and have Final Vinyl manage the separation of each song into individual files ready to burn to a CD. Final Vinyl can also dynamically set and adjust audio levels to ensure that the recording level of the source music is adjusted to its optimum point. It is a free download.

Also available is the Griffin Turntable Connection Cable with built-in grounding to eliminate hum. This six-foot cable features stereo RCA jacks and a grounding screw on one end, and a mini-jack on the other. It connects a turntable to the £36 Griffin iMic or £99 PowerWave. The Turntable Cable (above) is £9.
**AM Micro, 01392 426 473**

# Net-radio recorder updated



Bitcartel's radio recorder, RadioLover, has been updated to version 1.2. The update features improved song-splitting options, improved tagging, and bug fixes, says the company. RadioLover enables recording of MP3 radio streams as separate songs. It's possible to schedule recordings, record multiple radio streams at the same time, and automatically tag MP3s with song name, artist and album information. It supports the iTunes Radio Tuner, and costs $15.

Bitcartel has also updated its application that enables recording of Internet audio. Version 1.2 of iRecordMusic brings advanced iCal scheduling, iTunes playlist and tagging support, and bug fixes. Recorded files are iPod-compatible. Other new features include naming of recording sessions by broadcaster, show and DJ, and the option to record as MP3, AAC, or AIFF. Recordings can be scheduled via iCal, and multiple recordings can be made at the same time. iRecordMusic costs $20.
**www.bitcartel.com**

## Game on for iPod users

XO Play has launched two iPod games – Herbert and The Rise of the Lost.

The Herbert game sees the iPod user in the role of Herbert: "a heart breaker, lady lover, funny guy who has all the right moves". The aim is to seek out your one true love in the city. The game costs $14.

The Rise of the Lost is an iPod story game in which the iPod owner goes on a choose-your-own-adventure style adventure. Players follow text instructions, make choices, and find out whether they lead to success or disaster. It costs $9.
**www.xoplay.com**

## GarageBand SoundPacks

Advanced Media Group (AMG) has announced four SoundPacks for Apple's GarageBand. SynthPack for GarageBand features 154 new Instruments based on classic synths of the 1980s and 90s. These include ARP 2600, MiniMoog, Xpander, MC202, MemoryMoog, Matrix 6, and Juno 106. Also available is Bollywood Dreams featuring 327 Apple Loops by Sumeet Chopra. These join Apple Loops compilations Skip to my Loops provided by Norman Cook (aka Fatboy Slim), and Vince Clarke of Erasure's collection of drum loops, synth riffs, and bass-lines. Each SoundPack costs £30.
01252 717 333

## Low-cost sequencing

Ergonis Software's Easy Beat 2.0 is a MIDI sequencer application for Mac OS X. Users can compose songs by drawing notes or recording them with a MIDI instrument. It is possible to view up to 16 tracks. 100 instruments are available, and effects and variations can be added. The tune can be played using the built-in software synthesizer, or an external synthesizer, and the score and tabulature can be printed. A single user license is $89.
www.macility.com

## Vroom vroom vroom!

iKnow F1 is a free iPod encyclopaedia that offers instant references for F1 motor-racing fans. It offers details about this season's drivers, in-depth info about races, and answers questions such as the purpose of a double-waved yellow flag.
www.kimistuff.com

## For those about to rock

PodServe is offering busy iPod owners in the UK a way to get their music into their computer. The company will rip the audio from CDs, confirm all the artist, album and track data, and copy them onto a DVD in MP3 format. These tracks can then be added to an iTunes collection and dropped into their iPod. The company charges £1 per CD ripped, plus £3 to cover secure return postage.
01277 222 398

*continues page 41*

# HP intros new all-in-ones

HP has extended its range of multi-function products with five new all-in-ones, four of which are laser models. The HP Officejet 9100 series combines colour printing, copying, scanning and faxing with digital sending. The family of three – the **OfficeJet 9100** (pictured), **9120** and **9130** – is designed for groups of up to 15 users in networked environments.

The series provides remote management features, colour control, and Embedded Web Server tracking options to keep tabs on usage. Printing speeds are 22 pages per minute (ppm) in colour, and 25ppm in black-&-white at up to 4,800dpi. The AIOs feature 256MHz processors, 128MB built-in memory (upgradeable to 384MB), and a 150-sheet tray. The 9120 and 9130 also offer an additional 250-sheet tray.

Digital sending lets users scan and send documents directly from the all-in-one via email. The 9130 features a retractable keyboard to aid sending such emails. Prices start at £499 for the OfficeJet 9110. The 9120 is £620, and the 9130 is £749.

The **LaserJet 3015** all-in-one offers 14ppm at 1,200dpi (600-x-600dpi). It features 32MB RAM and an additional 2MB fax memory for storing 110 pages of faxes. Scanning is at 600-x-600 optical dpi, with OCR software included. It costs £279.

HP claims the **LaserJet 3020** and **3030** are the smallest flatbed all-in-ones in their class. They offer printing and copying at 14ppm at 1,200 effective dpi (600-x-600dpi). According to HP, the scanners are capable of 9,600dpi (600-x-600 optical) and offer 24-bit colour images. Like the OfficeJet 9110, they feature 32MB RAM. The 3030 has fax capabilities, and an additional 2MB of memory for storing 110 pages of faxes. The 3020 costs £299. The 3030 costs £379.

The **LaserJet 3380** offers print and copy speeds of 19ppm at 1,200dpi (600-x-600), first page out in 8 seconds, colour scanning at up to 9,600dpi (600-x-600 optical), and faxing. It features 32MB RAM (expandable to 96MB), a 240MHz processor, and an additional 4MB of fax memory for storing up to 250 pages of fax documents. It features a 260-sheet input tray and a 50-sheet automatic document feeder. Documents can be converted for archiving or direct emailing via a button on the front-panel. An LCD provides instant access to status and configuration messages. It costs £529.

**08705 474 747**

## HP driver updated

Microspot has updated its X-RIP 100 printer driver developed for the HP DesignJet 100, 110 and 120 printers. X-RIP 100 1.6 adds support for virtual printing (print to file), as well as via TCP/IP (over a network) to the standard USB direct connection. X-RIP 100 requires one licence per printer, is easy to configure, and offers a range of custom print settings so users can modify print jobs according to individual documents.

The company claims the driver provides quality photographic images making it an affordable, non-PostScript alternative for large format printing. It costs £116.

**01622 687 771**

## Epson's jack of all trades

Epson has launched the Stylus Photo RX600 – an all-in-one photo centre that can scan, copy and print photographs from digital and analogue sources, according to the company.

It offers six-colour printing – incorporating Epson's light cyan and light magenta inks – claims a 5,760-x-1,400 optimized dpi resolution, is capable of 3-picolitre droplets, and will print 10-x-15-inch colour prints in 54 seconds.

The device supports digital photo printing from cameras that use Print Image Matching (PIM) or Exif. It also features an in-built MatrixCCD scanner with a resolution of 2,400-x-4,800dpi, an integrated transparency unit for digitizing, restoring and saving film archives, and image-editing software for colour restoration and dust removal.

An onboard control panel with a 2.5-inch colour display allows formatting, editing, manipulating, copying and printing of photos without a Mac. It supports 12 memory-card types and costs £279.

**0800 200 546**

### Read the script

Late Night Software's Affrus 1.0 is a tool for editing, debugging and running Perl scripts. It provides syntax colouring and identifier indexing, and integrates with Bare Bones' BBEdit and TextWranger. The debugger features step-wise execution, breakpoints, tracing and expression evaluation as well as stack frame tracing with full access to locally scoped variables. The debugger displays all Perl registers and variables. Affrus' debugging capabilities can be invoked from the OS X command line. Other features include Unix shell integration, stdin (standard input) redirection, and environment variable redirection. It costs $99 online.

www.latenightsw.com/affrus

### Information is power

Knowledgetank is Memsculpt's first application for Mac OS X. The information-management software supports category- and date-based organization, user templates, personal journaling and advanced search. Knowledgetank is shareware. A single-user licence costs $29.

www.memsculpt.com

### Down to business

Hansa Business Solutions has launched HansaWorld Enterprise – a business-software suite of 50 modules and components for accounts, enterprise resource planning, customer relationship management, and e-business. It offers full support for Unicode, facilitating multi-byte language versions of the product, and allowing several different language versions to be mixed on the same server. Pricing is based on the number of users.

0845 123 2732

### On the job

FRS Time Tracker Pro from Fast Rabbit Software is a Mac OS X utility for tracking the amount of time spent on projects. It allows tracking of multiple jobs, and records the total amount of time spent on a job. An overview job list and detailed job history can be printed, complete with notes. It costs $19 per user.

www.fastrabbitsoftware.com

*continues page 42*

## Apple updates

Apple has updated **DVD Studio Pro**. Version 2.0.5 includes critical fixes for the placement of the dual-layer break point on DVD-9 titles.

**Fan Control Update 1.0** improves performance and reliability of the Fan Control system of the Power Mac G5. It is a 1MB update.

The company has also issued a firmware update to its **Wireless Keyboard and Mouse**. The 1MB 1.1 download "improves performance and reliability", Apple says.

Apple has updated **iChat AV**. Version 2.1 is 4.3 MB and adds support for video conferencing with the AOL Instant Messenger 5.5 for Windows.

Links to Apple updates are available from www.macworld.co.uk/updates. Apple does not permit third-parties, such as Macworld, to distribute its software updates.

## Third-party updates

Dantz has fixed a problem with VXA and DAT tape drives which could result in a hang or crash during backup. Version 5.2 of **Retrospect Driver Update** also improves handling of media in tape libraries during backup server scripts.

**CatDV Pro** is a multi-user tool for logging and cataloguing digital video. It works with video-editing applications, including Final Cut Pro, to provide automatic scene detection and clip logging, and maintains a catalogue of scenes with thumbnails and low-resolution preview movies. Version 3.0.9 fixes bugs and supports exporting a sequence containing stills as a movie. A standard version is also available.

**JoDrop 3.24** is an update to the drag-&-drop extension for QuarkXPress. The update allows users to rename and relink image files by selecting ⌘-Shift-R.

# New Mac book releases

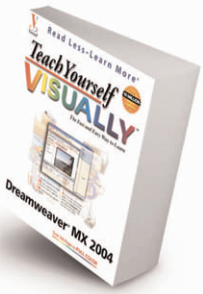
The second edition of O'Reilly's **iPod & iTunes: The Missing Manual** is now available. Described as "the book that should have been in the box," this guide by New York Times tech columnist JD Biersdorfer offers a collection of useful tips, tricks and shortcuts, and has been updated to include tips for Windows users.
**ISBN: 0596006586**
**£17.50**

**50 Fast Photoshop CS Techniques** from Wiley offers step-by-step techniques for creating professional quality images. The book is fully updated for Photoshop CS, and covers Windows and Mac versions. It shows readers how to fix flaws, correct colours, reveal detail in shadows and highlights, and sharpen images; convert RAW images and achieve accurate colour; restore, retouch, tone, add texture effects, and hand-colour portraits; use plug-ins; and build an online photo gallery.
**ISBN: 0764541749**
**£24.50**

In **The Photoshop CS Book for Digital Photographers** Scott Kelby shows readers how to make the transition from traditional to digital photography using Photoshop CS. It includes full-colour, project-based examples of every key step in the digital photography process-from experimenting with camera settings to capturing and manipulating images, and editing, outputting, and organizing them.
**ISBN: 0735714118**
**£30.99**

**Macromedia Dreamweaver MX 2004 Complete Course** by Joyce Evans is published by Seybold, and shows how to master the full range of Dreamweaver tools and techniques. Sixteen sessions and 100 step-by-step tutorials illustrated with colour images and screenshots walk through the process of creating a Web site from start to finish. At the end of the course, readers will have a portfolio piece that they can adapt for their own use.
**ISBN: 0764543040**
**£29.95**

**Beginning Dreamweaver MX 2004** is a guide published by Wrox that shows readers how to create and maintain Web sites using Dreamweaver MX 2004. Hands-on tutorials take readers through creating three complete Web sites, teaching the skills necessary to "work confidently". The book claims to show readers how to understand and manipulate code generated by Dreamweaver; create, implement and modify Cascading Style Sheets; add dynamic effects with DHTML; apply authentication and authorization techniques to protect sites from unauthorized users; store retrieve and display dynamic data; design sites with a modular system; and install and use Dreamweaver MX 2004 extensions.
**ISBN: 0764555243**
**£26.99**




**Teach Yourself Visually Dreamweaver MX 2004** from Visual (part of Wiley) is a guide for visual learners. It includes step-by-step screenshots that show how to tackle 150 Dreamweaver MX 2004 tasks, from planning a Web site to editing browser lists, including using HTML, inserting multimedia files, adding dynamic content, and uploading pages to a server.
**ISBN: 0764543350**
**£19.99**

David Fanning

The Internet has enriched our lives and whiled away our lunch hours for years – here's the top ten in the net hit-parade.

# Caught in the Net

Ten years ago, the nascent Internet was good for email (if you knew anybody that had email) and searching the Library of Congress with gopher, but only for ISBN numbers. It was still some way off making any major impact on my life. The only discernable difference was that people at parties actually wanted to listen to me talk about it... how things have changed. Here are my top ten uses for the Internet in 2004.

In recent years, I have found that the Net is much more integrated into my life. Not that my life revolves around it – I do have a life – but the Internet crops up quite often all the same. The first bit of it that really excited me was a while after the World Wide Web had creaked into action. It was July 1995 when Amazon started its online bookshop, and it was an instant hit. I was ordering books left right and centre, and I still use Amazon regularly. Now it's gone far beyond just a bookshop, although that's still the first reason for me to go there. But it's also an amazing resource for all kinds of information and pretty much anything the Post Office is allowed to ship. If you're really interested in what else Amazon has to offer, try a book called Amazon Hacks – you can get it at Amazon, of course. It shows how to tap into the amazing database that runs Amazon and use it in some really interesting ways.

While Amazon has been around for what seems like forever, I have more-recent distractions. Since getting broadband, online gaming has moved to a new level – games such as Halo and Medal of Honor are amazing to play online. Buying games now often means you get twice as much bang for your buck. First, you play the normal game. When you've honed your skills, you can test them out in the real (virtual) world.

Another aspect of the Internet that I use daily is iCal. I rely heavily on it to keep me organized. I'm not naturally well organized, so I use any available tools to help me. By being able to view iCal from home, work or my iPod (using iSync), I never need to be lost and bewildered when it comes to appointments.

The Internet has also changed the way I watch TV. I know Steve Jobs says you turn your brain on when you are at your computer, and turn it off to watch TV, but he hasn't seen me playing Halo. When it comes to TV, I now record my favourite shows to my Mac using ElGato's EyeTV. The really nifty thing is that I can program the recordings via the internet using **www.tvtv.co.uk**. No more fiddling with the remote, or more likely not bothering to record anything.

Not all my viewing is from the TV, though: I love to watch the latest movies on DVD. But making the trip to Blockbuster is too low-tech for me. I simply log on to **www.qflicks.co.uk** and rent from them. I always have three movies on hand, and as soon as I watch one, I send it back. A couple of days later, they send me the next movie on my list. It's cheaper than getting Sky Movies, and you get to pick the latest blockbuster.

I'm a fairly recent convert to the joys of iChat AV. I'm still not convinced of its usefulness in business, but for keeping in touch with my wife, I wouldn't be without it. When I go to the Macworld Expo in San Francisco, it very often conflicts with my wedding anniversary (13 years, thanks for asking). This year, the week apart was made very much easier thanks to iChat. The hotel phone bill was almost nothing – when it has tipped $1,000 in the past – and I got to see and chat to my wife every day. Just that week made the purchase of the cameras worthwhile.

It might be old fashioned, but the Internet is still good for browsing. I don't really have the time to seek out amusing and amazing Web sites. Instead, I turn to **www.fark.com**, a one-stop-shop for the weird of the Web. Fark was started by Drew Curtis in 1997, though at first he just put up a picture of a squirrel, until he came up with a good idea for a Web site. It now hosts the best collection of interesting links to odd news stories, fun games, the best blogs, and its hugely popular Photoshop competitions. From a mere 50,000 hits in the whole of 1999, Fark got 350,000,000 hits last year.

My most recent conversion is to printing photographs online. Now that Apple has finally granted us Europeans access to book and photo printing from iPhoto. I love the speed and ease of use. It caters well for my lazy self: no more printing on the wrong side of the photo paper; no more wonky prints with uneven borders. You can read more about iPhoto printing on page 87.

I'm sure the iTunes music store will be on the list later this year, but I already enjoy legal downloads of DRM audio. It isn't music, though – it's audio books from Audible.com. My iPod is never without the latest copy of Forbes, Harvard Business Review or some sci-fi nonsense, thanks to Audible.com. I know Apple will be selling audio books from the iTunes Music Store, but I'm going to stick with the original audio bookshop on the Internet. Also, all prices are in dollars so it's cheaper than ever for those using the currently mighty pound sterling.

So that pretty much covers my top-ten innovations that are around thanks to the Internet. I think it's clear that my life has been enhanced in many ways by the ingenuity of the people inspired by the ubiquitous network. What's that you say – that was only nine innovations? Damn... OK, OK. Porn. MW

**'I know Steve Jobs says you turn your brain on when you are at your computer, and turn it off to watch TV, but he hasn't seen me playing Halo.'**

# Michael Prochak

As Voltaire said, to understand the mathematical meaning of infinity just consider the extent of human stupidity.

# Stupidity sells

Despite being a paradigm of rationality, even the world of science is infested with enough stupidity to cause at least a one-generational time-lag before new theories and practices are fully accepted. So it's no wonder that in the more twisted realms of politics, economics and religion, time-lags of thousands of years are considered normal. As far brighter folk than I have rightly observed, stupidity has murdered and imprisoned more geniuses, burned more books, slaughtered more populations and blocked progress more effectively than any other force in history. It's probably no exaggeration to say that stupidity has killed more people than all the diseases known or presumed to be known.

While advances in technology have a remarkable potential for changing the whole way we work, live and view the world, you can bet that stupidity, coupled with the usual doses of greed and alpha-male power trips, will stifle its full potential for generations to come. Fortunately, from an evolutionary point of view, the more complex a system is, the greater its instability. And as we continue to become an even more information-rich society, instability could be a particularly positive antidote to complacent stupidity.

Recently Apple announced that music fans have purchased and downloaded over 50 million songs from the iTunes Music Store, and that iTunes users are now downloading 2.5 million songs per week. This means that music lovers are downloading songs at an annual rate of 130 million songs per year. Add to that the growing success of iLife, ironically branded the "Microsoft Office for the rest of your life", and it would appear that Apple has grabbed the imagination of the more creative and fun side of computer users everywhere. But then again, we shouldn't be too quick to underestimate the power of stupidity.

According to recent reports in In-Stat/MDR, Microsoft is fast becoming a significant player in all forms of digital content distribution. Whether it's broadcast, Internet, DVDs, or video on demand, claims the report, Microsoft's push into digital media has bought the company a seat at the table when it comes to discussing the direction of these various content channels. From its investment in Movielink, plans for online music, Xbox, the Windows Media Series 9 platform for delivering content over any network, its Digital Rights Management offerings, and Media Center PC initiatives, Microsoft is attempting to tread on Apple's toes by doing business with those who control the creation and delivery of content.

Analysts now believe that the company's goal is not to own a media empire, as recent speculation about a possible Microsoft bid for Disney would portend, but instead to have its hand in as many pies as possible through its end-to-end tools. This means that Uncle Bill will need to continue to make his evil empire, and hence its core products, look relevant by appearing to add value. Following a little too closely in Apple's footprints, Microsoft and the PC industry are now working hard on the stupidity factor by attempting to position the computer – or, rather 'their' computer, as the central hub for the digital lifestyle and an electronic storage chest of entertainment content and photos.

OK... I know the Mac already does all that and yes, Apple CEO Steve Jobs has already reserved a place for the Mac in our digital universe. But we've seen the Redmond mob foist inferior products on the public before and we've seen the public lap it up. Although some content and consumer electronics companies are wary of becoming too dependent on Microsoft and are working to keep alternative technologies alive, Apple can't afford to be complacent. Sure, there's been some government intervention to curtail the Microsoft plague, as exemplified by a recent decision by a European Union advisory panel to punish the company bad-boys and potentially require Uncle Bill to extract Windows Media from the operating system. But we've seen how this digital vampire has dealt with government intervention in the past and there's no guarantee that any legislation will wield a big enough stake to pierce its heart. That is, if you happen to believe that the company has one.

It would be nice to think that if human stupidity decreased there would be less opposition to original thinking and new approaches to old problems. It would also be nice to think that if stupidity decreased, less money would be wasted on imbecilities such as the arms trade, the so-called war on terrorism and other various secret-weirdie organizations, leaving more available for life-enhancing projects. But then again, companies like Microsoft have a lot of money to waste, which means that companies such as Apple have to remain vigilant. If Uncle Bill and his crew decide they want this market, they're well placed to grab it – despite the quality, or lack of it, in their technology. And you can bet they will stick their hands – or anything else, for that matter – into as many pies as possible. Personally, I wouldn't want a piece of a pie that Microsoft had stuck something into, but you can be sure a lot of people could be convinced that they did – no matter how bad it tasted.

Sometimes a good idea isn't enough, even if you *did* have it first. Sometimes, while we're waiting for evolution to kick in, stealing someone else's idea and convincing people that they want it is sufficient. After all, as Voltaire said: "to understand the mathematical meaning of infinity, just consider the extent of human stupidity". MW

**'I wouldn't want a piece of a pie that Microsoft had stuck something into, but you can be sure a lot of people could be convinced that they did – no matter how bad it tasted.'**

Titchy MP3 players

## iPod mini

**Manufacturer:** Apple
**Pros:** Extremely small and light; attractive colours; clickable scroll wheel.
**Cons:** No remote control included; two-line Now Playing screen; incompatible with media-reading and voice-recording add-ons.
**Min specs:** FireWire; Mac OS X 10.1.5.
**Price:** £199 including VAT.
Availability: July 2004.
**Star Rating:** ★★★★/8.5

It's incredibly small and light, comes in different colours, and has the lowest price of any product bearing the name iPod. Yet the iPod mini is a controversial product, mostly because it doesn't meet the expectations of people who wanted a truly low-cost iPod targeted at a mass market.

But the iPod mini shouldn't be faulted for what it isn't. Instead, let's appreciate it for what it is – an impressive new iPod in a smaller, more stylish package.

### What good things come in

It's easy to lay out the iPod mini's specifications: it measures 9.1-x-5-x-1.3com, and it weighs just 102g. But this list of measurements doesn't do justice to the mini – you really need to pick one up to understand just how tiny it is.

That there's a hard drive in there, let alone a 4GB one that can hold 1,000 songs, is difficult to believe. I slipped the mini into my trouser pocket and didn't even feel its presence – the original iPod feels like a second wallet.

The mini's anodized aluminium finish is essentially the same as the one on Apple's latest generation of PowerBooks. Unlike the PowerBooks, the mini comes in five colours: silver, gold, green, pink, and blue.

The display is also smaller than that found on the regular iPod (below, right) – a 1.67-inch diagonal instead of two full inches. The new display is quite readable, and the mini's menu interface is identical to that of the regular iPod. (And, yes, the two devices also offer exactly the same sound quality.)

The mini's display is one line shorter than the iPod's, so in Now Playing mode, you can see a song's title and the name of its artist – but not the name of its album. That's a reasonable choice, but I'd prefer more-sophisticated display options, such as being able to alternate the artist's name with the album's title.

### Taking control

Although the mini sports a dock connector identical to those on the third-generation iPods, its front button controls are more reminiscent of the first two iPod generations. Like those iPods, the mini has four buttons, located at the top, bottom, left, and right of the scroll wheel.

But unlike the early iPods, which featured a second ring of buttons outside the scroll wheel, the mini saves space because its buttons are part of the wheel itself. Press down softly on the wheel, and it gives slightly. Clicking on the iPod mini is a much more reliable tactile experience than pressing the third-generation iPod's set of four electrostatic buttons.

However, the mini's compass-style button design has its own interface limitations. The most glaring is that while navigating the interface involves scrolling from side to side, you use neither the left or right button to do that scrolling. Instead, you use the Menu (top) and Select (centre) buttons. This makes learning to use the mini a bit more difficult than it should be.

The mini's scroll wheel is still of the touch-sensitive, no-moving-parts variety, and it works well. I found the mini's controls to be slightly cramp-inducing in my large hand, but several friends with smaller hands said that the mini felt more comfortable than the regular iPod.

### The accessory's the thing

Although the mini's small dimensions ensure that a new crop of iPod cases will be in the offing, this new iPod is largely compatible with most size-independent add-ons for the third-generation iPods.

For example, the mini's dock connector will fit any device designed for the current iPods. (Apple sells a mini-size dock as a £29 add-on.) But although you can connect Belkin's £39 iPod Voice Recorder and £89 iPod Media Reader to the mini, they're incompatible; Apple has omitted voice-recording and media-card-reading functionality from the iPod mini's software.

The mini's headphone and remote-control connectors are identical to those on the third-generation iPod. Unfortunately, the mini doesn't come with Apple's excellent wired remote control. You can purchase one from Apple for £29.

### Macworld's buying advice

The two most difficult aspects of the iPod mini to judge are its storage capacity and its price, because they're so dependent on an individual user's needs. If you have a huge music library and rely on picking an obscure track from an even more obscure artist at random, the iPod mini is not for you. If you have a smaller library, or if you don't need the massive opportunity for serendipity that the larger iPods offer, the mini's 4GB of space will do just fine.

Similarly, your needs will affect how you view the £199 mini's asking price. The original iPod provided only 5GB of storage and cost £349, and it launched one of Apple's most successful product lines. Even at £199, the mini is the least expensive iPod ever.

The mini isn't the groundbreaking, "£99 iPod" that conventional wisdom said Apple had to announce to ensure continued dominance of the digital-music-player world, but it's an attractive, tiny iPod that carries 80 per cent of the original's capacity in half its size, at 60 per cent of the original's price. That's pretty groundbreaking, don't you think?.

**Jason Snell**

***Stop press!***
*As Macworld went to press, Apple announced a delay to the international launch of the iPod mini (see news).*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Catching up with the rest of the Macromedia product line, Director MX 2004 is the tenth full release of the pioneering multimedia authoring tool from Macromedia. From its humble beginnings in 1985 as a Mac-only animation package (originally called Macromind VideoWorks before changing to Director), it's come a long way, and is still the mostly widely used software for multimedia CD-ROM creation. But it's also the end of an era: this release is OS X only.

While young upstart Flash gets all the attention, old grandfather Director plods on in the background, steadily keeping up with current media technologies. But the ubiquity of Flash has forever changed the multimedia landscape, and the ongoing puzzle for Macromedia is trying to ensure compatibility between the two products while establishing a unique role and identity for each.

With this release, the emphasis is definitely on increasing the crossover between Flash and Director, further blurring the boundaries. The most fundamental new feature in this regard is the introduction of a JavaScript option for scripting, which can be used as well as the traditional Lingo. The JavaScript language is very similar to Flash's ActionScript language, and is used to add interactivity and control to Director movies. While Lingo supports a pseudo-JavaScript dot syntax, the new JavaScript scripting implementation is the real deal. But it isn't clear from the documentation whether the JavaScript syntax can be used for all aspects of a Director application, such as controlling video files, or working with Shockwave 3D objects.

## Movies-in-a-Window

Movies-in-a-Window (MIAWs) are linked Director movies that run at the same time in separate windows. They are the only way that Director can support multiple scores, replicating some of Flash's functionality with multiple timelines using Movie Clips. Macromedia has made big improvements in the performance and reliability of MIAWs in this release, which were previously rather flaky and with many undocumented and unsupported features, such as using a mask to create custom shapes.

Elsewhere, the application has been altered to be more Flash-like. In the score (the Director equivalent of Flash's timeline), you can now name sprites (instances from Flash) and channels (layers in Flash). Not only does this makes it easier for Flash users to get to grips with Director, it means you code the name of the sprite rather than the channel it's on, giving the freedom to move it around without breaking the code.

In this version, user-interface elements such as buttons, text-input boxes, and checkboxes are actually Flash Components, and you can also utilize more-sophisticated Flash Components such as the Date Chooser and Scroll Pane to provide powerful functionality to the Director movie.

As you'd expect from the MX 2004 release, this version can import Flash 7 SWF files created with Flash MX 2004. There are a number of ways of communicating from one to the other. You can effectively call functions, access objects, and target movie-clips within the embedded Flash movie from the Director interface, and trigger functions and access behaviours within Director from the embedded Flash movie.

Flash playback performance has also been improved by up to 70 per cent, Macromedia claims. This is especially relevant to Mac users as the Flash playback on previous versions has been sluggish.

As part of the MX 2004 product family, Director integrates well with the rest of the line, and you can launch and edit into Fireworks (for bitmaps) or Flash for SWF assets. The Fireworks Import Xtra brings in Fireworks files and preserver layers, slices and so on, and converts any rollover behaviours to Lingo code.

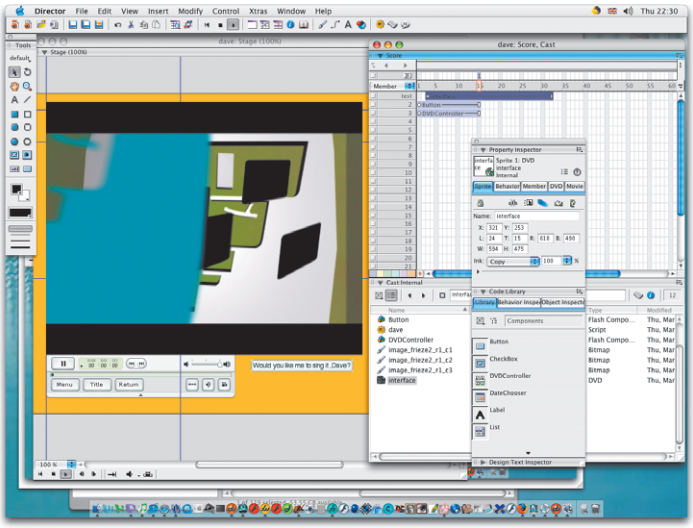
One of the biggest new features of DVD-Video, and something Director can do that Flash cannot, is the ability to work with linked DVD-Video files. DVDs can also be Web-enabled, letting content be updated from a Web connection. Controls are added using pre-built Flash components, but advanced controls and interactivity can be built using Lingo or JavaScript. Other video and audio formats including MPEG-4, Windows Media Video and Audio, MP3 and RealMedia files are also supported.

Publishing standalone Director applications (Projectors) has been simplified with a new Projector Publishing panel. In this release, it can publish as both Mac and PC projectors. You can also publish as a Shockwave movie for delivery online. While being able to create PC projectors from the Mac version (and Mac projectors from a PC version) is a bonus, for serious development it's essential that you test your application on all delivery platforms to ensure consistency of playback, font usage, and file compatibility. Having a one-click PC projector publishing button is, sadly, too good to be true.

## Macworld's buying advice

There isn't space here to fully compare strengths and weaknesses of Flash and Director, but what is clear from this release is that they complement each other well. As well as being a powerful multimedia development tool in its own right, Director can be seen as a tool to extend Flash's functionality for high-performance playback on CD, DVD, and kiosk applications as well as the Internet.

**Martin Gittins**



***DVD-Video support***

*It's possible to create Director applications to control and playback DVD content, if played through a computer – it doesn't turn Director into a DVD-Video authoring tool.*

Multimedia stalwart

# Director MX 2004

**Publisher:** Macromedia
www.macromedia.com
01344 458 600

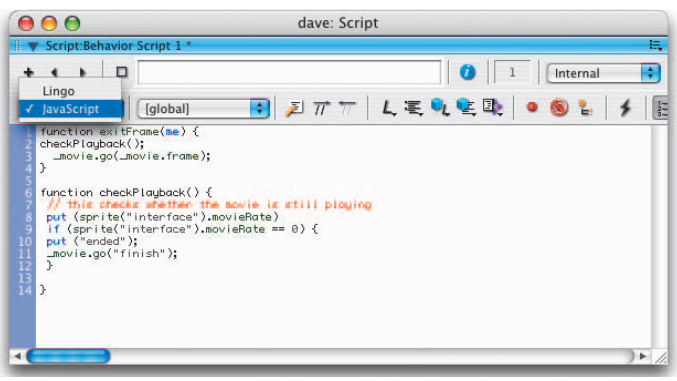
**Pros:** Improved Flash integration and playback; DVD-Video support; JavaScript scripting; dual-platform projector publishing.

**Cons:** JavaScript implementation poorly documented.

**Min specs:** Mac OS X 10.2.6; 128MB RAM; 200MB hard-drive space.

**Price:** £959; upgrade from MX or version 8.5, £319. Prices exclude VAT.

**Star Rating:** ★★★★/8.5




***Learn the script***

*Getting to grips with the new JavaScript syntax will be easier for Flash code monkeys than old Lingo lags like me. Luckily it's optional.*

Sophisticated digi-cam

## PowerShot S1 IS

**Manufacturer:** Canon
www.canon.co.uk 0870 241 2161
**Pros:** Clever image stabilization; very long zoom; fast read/writes; enhanced video mode.
**Cons:** Iffy low-light focussing; electronic viewfinder poor in bright light; flash prone to red-eye.
**Min specs:** USB.
**Price:** £479 including VAT.
**Star Rating:** ★★★★/8.0

Canon, amateur picture takers should never forget, is the company that transformed enthusiast photography from the 1970s onwards with models such as the A1, the all-electronic T70, and the EOS range – all now classic 35mm film cameras. Oddly though, and despite coming close in the much-admired G2, it hasn't yet managed to pull off the same trick in the digital era.

Poked into action by the worrisome rise of that other populist champion, Sony, Canon has been trying a bit harder with its cameras recently, starting with February's PMA tradeshow in Las Vegas. It was here, amid a number of minor updates to existing designs and a lot of fuss around the 8-megapixel PowerShot Pro1, that the world got its first glimpse of the curious PowerShot S1 IS.

Despite its modest 3.2-megapixel resolution and resemblance to current models such as the PowerShot A80, appearances are deceptive. The S1 is more like the start of something new – a camera that behaves more like a cross between a compact SLR (for want of a better term) and the solid-state equivalent of a mini-DV player – at least you get the impression that this was the ambition of its designers.

### Zoom lens

At the heart of the S1 is a 10x zoom lens, equivalent to 38-380mm on a 35mm camera. Rated at f2.8-f3.1 (depending on focal length), this is the longest zoom ever used by Canon on its digital cameras. In this respect, the S1 is similar to Fujifilm's S5000 and a number of new models from Olympus, but where it scores over the competition is that Canon has coupled the zoom to an image stabilization system (IS) as a way of reducing camera shake.

If not a new technology, IS remains surprisingly rare. It adds weight, takes up space, drains batteries and of course bumps up the price. Yet every mainstream mini-DV camcorder comes with it as standard, so why shouldn't cameras use it?

In the field, with the PowerShot S1's IS turned on (it can be turned off to save power – the S1 uses four AA batteries) it becomes possible to hand-hold long zoom shots where a tripod would normally be needed, as well as take wider-angle shots at shutter speeds as low as 1/30th of a second and get away with it. Overall, IS makes you want to use the zoom in ways you'd never previously have thought worthwhile.

The ultrasonic zoom moves smoothly, quietly and unusually rapidly, while write speeds are snappy thanks to Canon's inclusion of a high-speed 32MB CompactFlash card and, possibly, an internal data cache; shooting up to the claimed 1.7 frames per second sounds plausible. Flash cycles and image reviews are also noticeably quick.

Canon has opted for a 114,000 pixel electronic viewfinder, which complements the rather small flip-out LCD screen. These get mixed reviews – all-optical viewfinders let you view the scene in natural colour and exert no drain on batteries – but the electronic approach has its advantages. You get to see all camera settings as you compose shots, and exposure can be adjusted without taking an eye off the subject.

On the downside, the S1's viewfinder was stressful to use in bright conditions. Happily, both the viewfinder and the LCD show close to 100 per cent of the picture area – so what you see is what you get.

### Focus and movie mode

One aspect of the S1's performance the designers should look at is its focusing system. This is fine in normal light conditions, but starts to hunt rather desperately in low light when using the upper end of the zoom range. The obvious solution would be a focus-assist light, though not all photographers like these as they can be distracting for human subjects.

Movie mode on today's digital cameras tends to be a joke. Resolutions are way below the 720-x-480 pixels of the ubiquitous MiniDV format, frame rates of 25 frames per second (fps) or lower are common, and most cameras can save less than 30 seconds of video anyway.

With the S1, Canon has been more ambitious. You get a dedicated movie-record button right by the viewfinder, the ability to zoom while recording video, 16-bit sound recording at 22Khz, and a resolution of 640-x-480 pixels at 30fps. This isn't quite as good as a MiniDV, but is not bad.

The problem is that even a 1GB CompactFlash card will hold less than ten minutes of video at this resolution, and buying it would set you back a couple of hundred pounds. Meanwhile a 60-minute MiniDV tape can be bought for well under a fiver. The day of the multi-function video and still camera is drawing nearer, but don't throw away the camcorder just yet.

Image quality was decent for a 3.2-megapixel camera, if slightly noisy at higher ISO settings, matched by accurate light metering and good colour balance. This reinforces the new truism of digital photography – resolution is only part of the quality battle. Chromatic Abberation was apparent on some pictures, but this was only very slight at 50 ISO. Being fussy, we'd have liked single-button access to the exposure-compensation function.

### Macworld's buying advice

So is Canon any closer to making a digital classic? With the S1, not quite. It is good, but will no doubt be swept away by a tide of new products soon enough. But it points in the right direction.

Long zooms, image stabilization, a decent movie mode, the compact SLR-like design; when these features become standard, amateur photographers will have good reason to rejoice.

**John E Dunn**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Video-editing tool

## MediaEdit Pro

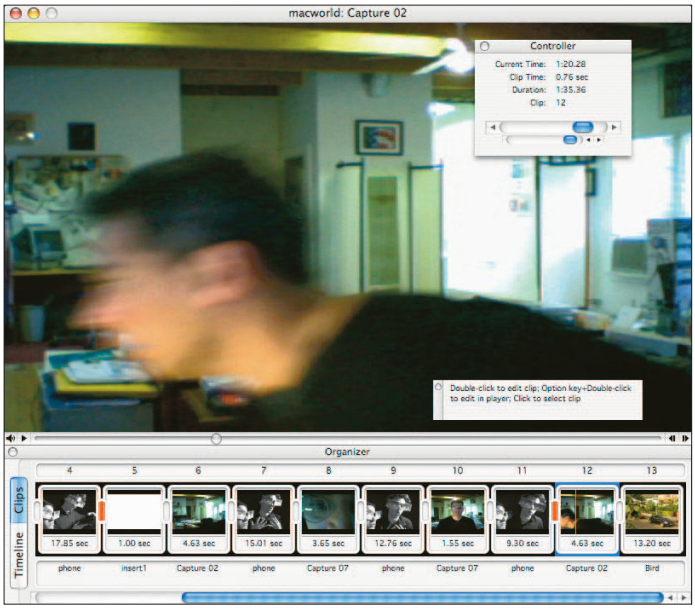
**Publisher:** macXware
www.macxware.com
**Pros:** Drawing and painting tools let you paint directly on video clips; support for iSight video capture.
**Cons:** Lacks most of the innovations and ease of use found in iMovie 4 and Final Cut Express.
**Min specs:** G3; Mac OS 9.1 or OS X 10.x; QuickTime 4.0.
**Price:** $40
**Star Rating:** ★★/4.2

At first glance, MediaEdit Pro looks as though it might fill the gap between iMovie 4 and Final Cut Express. It sports slick packaging, a familiar interface, an impressive name, and a reasonable price.

The "Pro" at the end of its name gives the impression that this program is powerful despite its low price. After all, iMovie is a little too rudimentary for some people, and Final Cut Express intimidates others. It seems only right that a program would come along to occupy the middle ground between those programs. Unfortunately, MediaEdit Pro does not.

The program does have merits that you won't find in other midlevel movie-editing programs. MediaEdit Pro's painting and drawing tools, which are similar to those in Adobe Illustrator, let you draw directly on your movie clips – a cool feature. Media-Edit Pro also lets you use Apple's iSight to quickly capture video.

The painting and drawing tools are helpful if you wish to attempt rotoscoping, or painting frame-by-frame over your clips. They may even lead to some visually innovative movies. But most casual users won't want to take the necessary time.




### Haphazard organization

MediaEdit Pro has four main windows: Movie Viewer, Clip Organizer, Controller, and Action History. Unlike iMovie or Final Cut – in which a browser window displays all movie clips, music, and images – MediaEdit essentially asks you to do your own media organizing.

You access the Media Browser catalogue utility, which acts as a hybrid of Adobe Photoshop's File Browser and OS X's iPhoto, from the File menu. It can preview any images and clips in your system, construct slide shows, do basic image editing, and import selections into a movie.

MediaEdit Pro's approach to media organization makes it difficult to find all disparate music, images, and movie clips, even with its Media Browser. For example, adding music from an iTunes collection is tedious. Without the advantage of a quick search field, as in iMovie, you could spend hours looking for the right tunes.

The Clip Organizer is divided into two tabbed sections: Clips and Timeline. You can order clips by dragging them into place, or edit them by double-clicking to launch the Movie Editor, where you'll do most of the detail work – such as adding titles; colorizing clips; assembling transitions and effects; adjusting clip speed; and importing, creating, and adjusting audio tracks. We were a little disappointed with the limited previews for transitions and effects.

You create titles as graphics inside of clips, essentially painting them on a clip in the Movie Editor. This approach may seem flexible, but it's also time-consuming and imprecise. You won't find fancy rolling credits, as you will in iMovie or Final Cut, unless you make them yourself – typical of this application.

### Macworld's buying advice

Sometimes it takes something like Media-Edit Pro to make you realize how good iMovie's simple interface is, or how powerful but easy to use Final Cut Express is. MediaEdit Pro lacks many features you'd expect to be pre-packaged, such as titles and pan effects.

While the program's authors made a valiant effort to create an easy and powerful video-production tool, the fact is that Apple got there first and has set a high standard for ease of use and efficiency. We'd like to see a viable competitor for iMovie, but in light of iMovie 4's latest enhancements, Media-Edit Pro barely makes the cut.
**Andrew Shalat**

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iSight camera stand

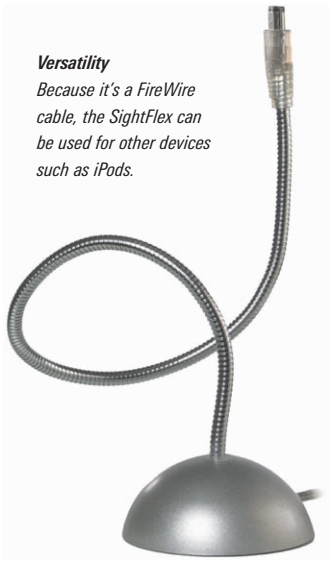
## SightFlex

**Manufacturer:** MacMice
www.macmice.com
**Distributor:** AM Micro
01392 426 473
**Pros:** Eye-to-eye contact; more convenient than the Apple version.
**Cons:** Makes disturbing creaky noises when positioning.
**Min specs:** FireWire.
**Price:** £28; iFlex, £19. Prices include VAT.
**Star Rating:** ★★★★/8.3

Now that I use iSight on a regular basis, I find it more annoying than ever that nobody ever looks you in the eye. The problem isn't an easy one to fix, but MacMice has the closest thing to a solution I have found – it's called the SightFlex.

The SightFlex is an alternative stand for your iSight camera. It is the essence of simplicity, and it doesn't need those eminently losable plastic clips that you need with the Apple iSight stands. It comprises a FireWire cable that goes into a solid, weighted base. From that base sprouts a bendy posable FireWire cable, on to which attaches the iSight camera.

That alone doesn't solve the problem of eye contact. The problem arises from the fact that you always want to look people in the eye, but during an iChat looking people in the eye on screen, isn't where the camera is looking. The posable SightFlex is tall enough to peer over the tallest screens, but I prefer to have it actually in front of the screen. When your chat buddy is full screen, you should be able to make eye contact if you have the camera in the middle of the image. This obscures part of the picture, but to avoid the annoying looking-over-your-shoulder effect caused by most stands, it's worth the trouble.



***Versatility***
*Because it's a FireWire cable, the SightFlex can be used for other devices such as iPods.*

### Macworld's buying advice

Even if you don't want to put your iSight in front of the screen, the SightFlex is still a far more convenient way of mounting it. If you want to use it on a PowerBook, MacMice makes the iFlex, which plugs directly into the FireWire port with the same flexy wire.
**David Fanning**

When a new piece of 3D software with a price tag of almost £2,000 arrives on the market, it's perhaps inevitable that you compare its feature set with those offered by rival software in a similar price bracket. In Concepts Unlimited's case, however, it's difficult to find other 3D software that fits the bill.

With industry-standard packages such as Alias Maya, Maxon Cinema 4D, NewTek LightWave and Electric Image Universe barely scratching the one-and-a-half-grand mark, you'd be forgiven for expecting to find a feast of hitherto unheard of features in Concepts Unlimited. If this is the case, you may be in for something of a disappointment.

But it quickly becomes apparent that Concepts Unlimited isn't intended for the standard 3D audience. Marketed as a CCAD design application – the 'C' meaning 'Conceptual' – Concepts Unlimited is aimed at professional product-designers, model-makers and CAD engineers; people who earn their living in the industry and need a fast, efficient and intuitive means of turning their ideas into something more tangible.

For this reason, many of the features that come as standard in most mainstream 3D applications aren't present in Concepts Unlimited. Cadsoft Solutions has abandoned bells and whistles in favour of solid, meaty modelling tools.

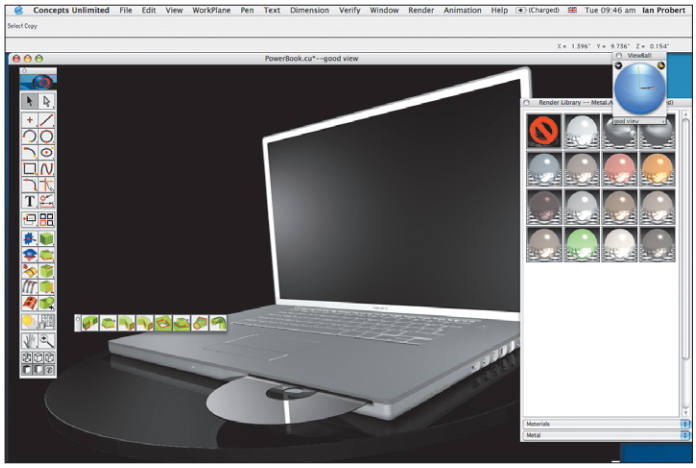
## Feature set

Let's begin, then, with what you don't get with Concepts Unlimited. Actually, the list is so long that it's difficult to know where to start. In Concepts Unlimited you won't, for example, find features such as radiosity, inverse kinematics, metaballs or caustics. Likewise, there are no physics engines, particles systems or fur generators.

If you purchase Concepts Unlimited hoping to use the software to produce high-end animations featuring fully textured characters, you may find yourself demanding a refund. You can look at such omissions in one of two ways: either Concepts Unlimited is overpriced and under-featured, or the software has been pared down to the extreme – stripped of all bloatware and superfluous features so that it can concentrate on what it does best. I prefer to believe the latter.

What Concepts Unlimited does best is create models. It does this via a truly staggering array of tools that designed to cater for almost every aspect of the design and modelling process. There are numerous solid-modelling tools that allow you to edit models in practically any way.

In contrast to the vast majority of 3D design programs, which make users manipulate points and polygons to create and refine complex objects, Concepts Unlimited does the majority of its work with parametric objects (you can, however, choose to edit points if you so desire). For product designers anxious to commit ideas to the third dimension without being bogged down by lack of 3D technique, this has obvious implications.



***Model behaviour***
*As well as all the standard solid modelling primitives, there's an enormous range of spline-creation and editing tools that can create almost any type of form in a one or two-step process.*

Users can, for example, easily create a solid object cube, apply chamfer or bevel to any or all of its sides in an very intuitive way, and then drill a countersunk hole into its body with a simple click of the mouse. The latter is a feature that I particularly like – in most modelling programs you might be forced use Booleans to create this effect, which tends to destroy the unity of the model (although Concepts Unlimited does feature Booleans).

Modelling is both incredibly powerful and remarkable flexible. This isn't to say that there's no learning curve attached to the program: in fact, it's definitely recommended that you have some knowledge of 3D design tools and techniques before using it. Without this, you should be prepared to burn the midnight oil with the manual for company. If, however, you can master the modelling tools in this program, the sky really is the limit.

## Working drawings

Aside from arguably the best, most fully featured and intuitive modelling toolset on the market, Concepts Unlimited offers a number of other features that are not found in other 3D programs.

One of the most impressive of these is the ability to automatically create two-dimensional multiple-view drawings of the models you create. This means that having put together his creation in Concepts Unlimited, the designer can then send off working production drawings to the manufacturer. The program also creates QuickTime movies of walkthroughs and fly-bys of objects simply by assigning a camera path to a curve.

As with all new software, Concepts Unlimited ships with a number of quirks, bugs and weaknesses that cry out for an upgrade. These include interface oversights such as the lack of a 'redo' key command (available only through the Edit menu) and more serious concerns such as screen redraw problems with imported 3ds files.

More disappointing is the paucity of render options available: for a program of this size you would expect, for example, to be able to specify the resolution at which to output files. In practice, you can output to any size – so long as you're prepared to do the maths.

## Macworld's buying advice

Concepts Unlimited brings serious modelling power to the Mac. If you're a product designer with a desire to bring creations to life with a degree of accuracy that's difficult to achieve in other 3D tools, Concepts Unlimited could be for you.

Seasoned 3D pros, however, may baulk at the price and ask if the superior modelling toolset is worth the trade-off in other key features that aren't included.

**Ian Probert**

Conceptual design

# Concepts Unlimited 1.2

**Publisher:** Cadsoft Solutions
www.cadsoftsolutions.co.uk
01223 257 771

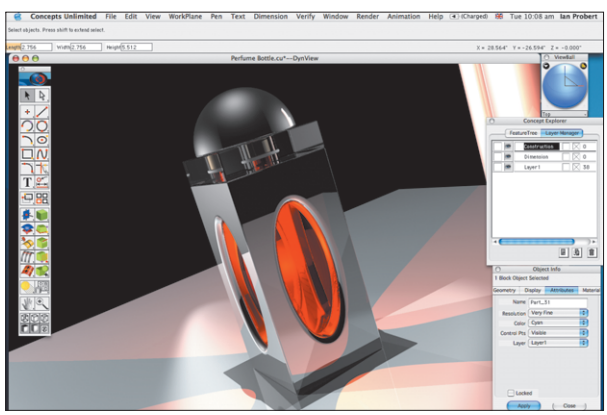
**Pros:** Easy to use despite its complexity; fantastic range of modelling tools; fast renderer; imports numerous file formats including Catia; automatically creates multiple-view working drawings.

**Cons:** Doesn't have the broad range of features available in cheaper rival packages; limited rendering options; interface needs improvement.

**Min specs:** G4; Mac OS X 10.2; 512MB RAM.

**Price:** Commercial single-user licence, £1995; educational single-user licence, £125. Prices exclude VAT.

**Star Rating:** ★★★★/8.4



***Ease of viewing***
*The Viewball palette lets you intuitively manipulate designs in 3D space.*

Panorama stitcher

## Stitcher 4.0

**Publisher:** RealViz
www.realviz.com 01628 528 256
**Distributor:** Computers Unlimited, 020 8358 5857
**Pros:** New workflow; rendering and image editing enhancements; improved Photoshop export and Stencil tool.
**Cons:** External image-editing function doesn't always work.
**Min specs:** G3; Mac OS X 10.1; 128MB RAM; OpenGL-compatible graphics card; 50MB hard-drive space.
**Price:** £349; upgrades from any version, £125.
**Star Rating:** ★★★★/8.6

This update to the RealViz panorama tool brings new workflow and image-editing enhancements to what was already a slick, efficient application.

Stitcher works by assembling rows of multiple overlapping images together to create panoramas, 360-degree movies or walkthrough VR scenes complete with 'hotspot' links to Web sites and other forms of media. The images are assembled from the Image Strip storage area onto the inside of a virtual sphere, as if papering the walls.

The size and angle of the sphere in the main Stitching Window are dependant on the camera's focal length, which Stitcher calibrates along with distortion parameters from the original images. No information is required about the camera or the scale of the scene, but for the shots in this review, we enabled Stitcher's Read Focal from EXIF data function to initialize the focal-length value for each new project. This was based directly on EXIF information imprinted by a Canon Digital Ixus 430 and PowerShot S45.

Dragging images over each other results in a ghosting effect that helps when aligning the elements of the image together. The images' opacity can be adjusted in the reorganized Preferences – a welcome workflow enhancement. You need at least three rows of shots covering the full 180 degrees for a 360-degree VR panorama.

### Taking shots

Taking the original photos is thus a key part of the Stitcher process, and they should be shot with stitching in mind; the manual has helpful hints about positioning and shooting angles. There are, of course, special tripod heads for shooting panoramas, but you can get by with a steady hand and a bit of patience for most jobs.

Positioning the second and third tiers can be tricky: to align objects, you need to nudge and rotate them into place. You can use a keyboard shortcut for this, which displays a yellow pivot point on the selected frame. It's still easy to get wrong, however – especially if the image display resolution isn't all it could be. Stitcher can adjust this, though, using more new Preferences tabs. The maximum texture size, which sets the image-definition display quality, is 1,024, with the default value pegged at 512. A G4 with a decent amount of RAM and fast graphics card will have no trouble with this side of things.

The problem with taking multiple images, especially outdoors, is that the light changes over the duration of the shoot. To counter this, Stitcher has an equalize function.

Another problem is that artefacts can creep in to the scene, especially where images overlap and something has changed from one moment to the next. This version addresses this in a number of ways. There's an enhanced Stencil tool, which is great for fixing human movement. The Stencil tool can also crop images to delete undesirable areas and can reduce the optical vignette effect or darkened edges, on an image taken with a wide-angle lens

Another enhancement is the ability to edit an image in an application such as Adobe Photoshop before rendering. You can set this in Preferences, then Control-click on an image in the Stitching Window or the Image Strip to open, edit and save the image.

Rendering options have also been improved, offering a wide choice of interpolation algorithms. You can choose from Nearest, Bilinear, Bicubic, Mitchell, Lanczos3, Lanczos4 and Lanczos5. As a guide, Nearest gives the fastest render time but the poorest-quality image, and Lanczos5 gives the slowest render time but the highest-quality image.

You can also choose to maximize the render resolution without degrading the result by selecting the Best Rendering Size function for a 1:1 render. The size of the render is calculated according to the image size and the size of the Stitching Window. Another new feature lets you render a panorama using the render parameters from a previously saved project, thus dramatically speeding up any batch processing.

Panoramas can be rendered as a cube, plane, cylinder, sphere projection, as VRML and as a cubical projection for use in Director as a Shockwave asset or a cast member. Stitcher can export also in QuickTime VR form (Cylindrical QTVR and Cubic QTVR). A preview option is new in the QuickTime Movie Settings tab of the Render options window. This lets you set default parameters for the QTVR render interactively, by dragging in a preview window.

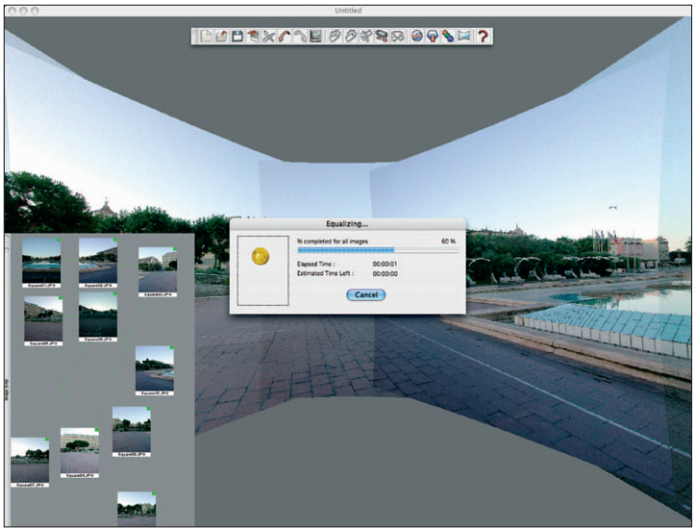
When Stitcher renders a panorama, the alignment is based on drawing horizontal or vertical lines on frames visible in the Stitching Window. A new tool, Auto-Align Panorama, can do this automatically, although this is best used on a single row of three or four images.

Stitcher has also enhanced its Photoshop export tool, which now has the ability to fully edit rendered panoramas in the image editor. The PSD file produced from the planar panorama option comes complete with all frames that make up the projection as layers. You can then go into individual layers and mask off and correct any artefacts that have produced 'ghosts' in the panorama by manipulating the opacity of the image masks.

### Macworld's buying advice

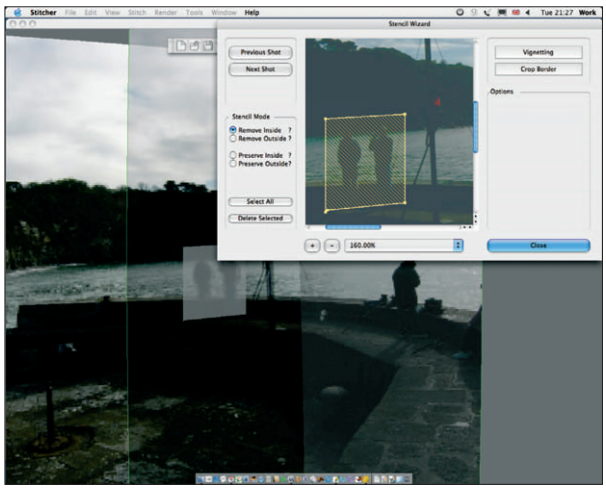
Stitcher 4.0 further refines an already effective application. It's pricier than its competitors, but if you're serious about panoramas for Web design, 3D modelling or artistic ends, this is the package to use.

**Michael Burns**




***The Equalize function***
*This blends the levels in conjoining images to give a smooth progression from one image to the next.*

***Using the Stencil tool***
*Select an image for use with the Stencil tool, then just click on the image, draw a polygon around the offending article and click the polygon type to remove it. There are four options, such as removing anything inside the polygon or preserving everything outside.*





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Low-cost video editor

# Final Cut Express 2.0

**Publisher:** Apple
**Pros:** Professional-level editing; real-time preview of effects; audio keyframing; system optimization.
**Cons:** Couldn't capture DV across time-code breaks during testing.
**Min specs:** 250MHz G4; Mac OS X 10.2.5; FireWire.
**Price:** £199; upgrade, £69. Prices include VAT.
**Star Rating:** ★★★★/8.4

Software companies nearly always build new versions of software on top of old versions, a practice similar to the way you'd add a second story to a too-small house. But in Final Cut Express 2.0's case, Apple moved to a completely new neighbourhood, scrapping Final Cut Express 1.0 (reviewed March 2003) and basing its successor on Final Cut Pro 4 (reviewed August 2003), which included performance and audio-related improvements, as well as real-time effects previews.

Now intermediate DV enthusiasts will benefit directly from these great new features and pay less than a third of Final Cut Pro's price.

## Improving from within

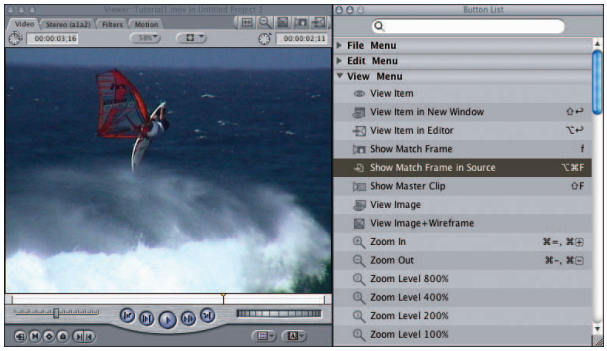
The core characteristics of Final Cut Express 1.0 remain in version 2.0: it works only with DV-format footage (as opposed to high-definition or 24-fps input, which Final Cut Pro handles); supports up to 99 video and audio tracks; incorporates some colour-correction capabilities and some motion control via keyframes; and offers more-flexible titles, transitions, and effects. It wraps all this in an interface that's nearly identical to what pros use.

But the improvements in Final Cut Express 2 are less about a few new features and more about its strengthened Final Cut Pro 4 foundation. The application is optimized to run on Mac OS X 10.3 (Panther) and on G5 processors, which contribute to its most exciting new feature, RT Extreme. In Final Cut Express 1.0, you had to render (write to disk) many effects and transitions before you could play them back in the Canvas (the window where you play back your assembled movie).

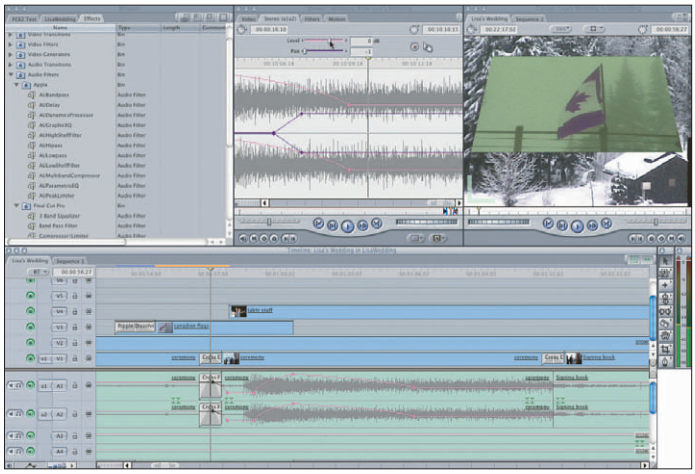
Now you don't have to wait. RT Extreme lets you see most effects and transitions before rendering. It requires a 500MHz G4 processor (550MHz for portables) or higher, or dual-G4 or -G5 processors of any speed.

RT Extreme offers multiple performance settings (Safe RT and Unlimited RT, each with High, Medium, and Low video-quality modes) to accommodate a range of Mac speeds, or to let you specify your preferred trade-off between playback speed and video quality.

I tested RT Extreme on a 1.25GHz 15-inch PowerBook G4. As an example, a colour adjustment and 3D rotation applied on a clip overlay played fine, though it dropped quite a few frames. But playback was good enough to give me an idea of how the final rendered version would turn out.




***Cool customizer***
*Customize the Viewer and other windows by drag-&-dropping commands from the Button List. The new button bar is in the top-right corner of the Viewer.*



***Real-time everything***
*Final Cut Express 2 boasts RT Extreme for previewing effects, such as this 3D-rotated overlay (top right), as well as automatic audio keyframing for making rough volume and pan adjustments.*

## A new look

Final Cut Express 2.0 boasts an improved user interface with added features that make editing easier (see "Real-time everything"). You can add customizable buttons to windows for quick access to more than 400 commands. To do so, simply drag-&-drop a command from the Button List, which also features a handy text-search field for easily locating commands.

You can also resize multiple windows by dragging their adjoining edges. However, this feature had an annoying flaw – it was too easy to resize windows accidentally when I meant to drag a clip's in- or out-points in the Viewer (the main preview window).

You can change the height of individual tracks in the timeline. This comes in especially handy if you like to edit audio tracks in the timeline while displaying their waveforms. The program even provides timeline controls that let you play only the isolate audio tracks; you don't have to disable all the other tracks manually to mute them.

## An ear for quality

Final Cut Express 2.0 has gained some audio improvements, too. Audio keyframing lets you set volume level and pan values while playing-back a clip, giving a rough set of audio edit points to fine-tune later. However, because Final Cut Express makes adjustments in real time, this feature sometimes made me feel as if I was playing some sort of scrolling video-game (quick, set the level before the waveform disappears!).

Apple has also implemented its Audio Units (AU) technology in version 2.0, and it provides 11 AU filters in addition to 16 audio filters from Final Cut Pro. If you own Apple's Soundtrack application (reviewed December 2003), you can set scoring markers to identify music cues in Final Cut Express 2.0, and then export the markers for use in Soundtrack.

Surprisingly, the only real problem I ran into during testing was with a much-touted new feature: recording over time-code breaks. A time-code break occurs when the camcorder encounters blank tape (say, at the end of the last recorded frame), assumes the tape is new, and resets the counter to zero. This happens frequently after people review what they've recorded.

When using the Capture Now feature, Final Cut Express 2 is supposed to note the time-code break, create a new clip, and then continue capturing. However, in testing with multiple Macs and camcorders, I encountered instances where Final Cut Express aborted the capture process without capturing footage after the time-code break, or else captured the footage but didn't split it into separate clips. (Apple is aware of these problems and is looking into them.)

## Macworld's buying advice

Even with the capture gaffe, Final Cut Express 2.0 provides the best aspects of a professional video-editing application while leaving out features an intermediate or semiprofessional user doesn't need. If you're looking for more than what iMovie offers, this is a program you can call home.

**Jeff Carlson**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When I was a kid I used to love t-shirt shops. I'd spend hours pondering which humourous slogan or motto I wanted to represent my 12-year-old personality. My fashion sense has never really recovered. Imagine my excitement when I heard that Xanté now has a printer that is designed especially for t-shirt printing.

The printer is a modified colour laser unit that uses a special toner that actually bonds to the fabric, rather than just sit on top of it like the plastic transfers of old. Simply print your image onto paper, then run the page through the printer a second time after inserting the clear cartridge. Then you can take your image and, using a heat press, transfer it to a t-shirt of any fabric. The results are instant and impressive. At first the image is a bit crisp, but after a wash the clear toner is gone leaving a soft, screen-printed look.

Screen-printing is the usual way of getting an image on shirts, but the setup costs mean that runs of under a couple of hundred aren't economical. With the Xanté printer, one-off shirts are no trouble at all.

Another way of printing shirts using the plastic transfers is possible, but these aren't ironable, and are great for wear-once promotional items. If you want to wear them more than once, you'll get cracking and peeling.

There are some advantages to the plastic or screen-printing method of getting your design on a shirt. For a start, you can print on any colour shirt. The Xanté is limited to white or pastel shirts. This is because the printing inks are CMYK – there's no white, so any colours over black will look muddy. If you print on pastel coloured shirts, any white areas will be the colour of the shirt. So it isn't ideal for every situation.

There are plenty of situations that the t-shirt printer is ideal for, though. There's a market for short-run shirts almost everywhere you turn. Whether for pubs, clubs, sports teams or companies, everybody likes a good-quality t-shirt. Unlike the plastic transfers, you can print onto 100 per cent cotton shirts, instead of the more expensive and less snuggly poly-cotton mixed shirts.

There are endless possibilities, without even considering the regular fashion angle. When you think about it, adding a design to a shirt that costs only a pound or two can easily increase its value by 1,000 per cent or more. It's like a licence to print money if you get it right.

Of course, getting in on a deal that allows you to print money is never cheap – and nor is this printer. The printer costs £4,999, and if bought with the t-shirt printing starter kit, goes up to £6,999 – plus VAT. Then add another grand for the heat press (if you don't already have one), and the cost of the shirts (from as little as £1 each if you buy in bulk). That all adds up to something like £10,000 all-in, including VAT. So how on earth could you make your money? Well, that's enough to make at 1,000-1,500 shirts. If you can sell your shirts for £10 or more, you'll have made your money back with your first batch. So all you have to do now is figure out how to sell 1,000 t-shirts. How hard can that be?

### Macworld's buying advice

In the right hands, this printer could be the start of a great business. The initial outlay is large, but once that's paid for, you're looking at costs of around £2.50 per shirt (not including the shirt). It's an ideal addition to any print shop or any company making promotional items – or even just a designer with a dream. Either way, this is the first printer to feature this capability, and is bound to make a big impact in the screen-printing industry. So now would be an appropriate time to jump on the bandwagon, before it's moving too fast.

**David Fanning**

Print your own t-shirts

## T-shirt Printer

**Manufacturer:** Xanté
www.xante.com
**Distributor:** Info Tec
0870 742 0802
**Pros:** Unique technology; ironable prints; doubles as a normal colour printer.
**Cons:** Prints on white or pastel shirts only; high initial costs.
**Min specs:** Mac OS 9 or OS X.
**Price:** £6,999 plus VAT, includes t-shirt-making starter kit.
**Star Rating:** ★★★★/8.6

9
X

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The CL30 isn't a new printer; we reviewed it around this time last year. But the HSE version is special because it can handle heavy card stock up to 330gsm. This might seem like a minor tweak, but it increases the possible uses greatly.

It makes business-card printing easier, especially for short runs. Previously there were some business-card sheets that could be printed on, but these were a little flimsy.

The thicker stock makes for a more traditional business-card feel. Menus are another big request for small print-shops. They need to be on decent card stock because otherwise they're too floppy.

The ability to print on stock with different textures is also a useful feature.

The specialist nature of the HSE version means that it will be produced in low volumes, which in turn means that it will cost a little more than the regular version of the CL30. Actually, it's 50 per cent more, with the entry-level version costing £5,999 plus VAT – two grand more than the normal version – but considering the versatility of the printer, it could still be cost effective.

One of the biggest requests for short-run printing on card stock is for restaurant menus. If you think about it, every restaurant in Britain must get through dozens of menus every month. Posher restaurants may have different menus every day, and all these need to be printed. Thirty pages per minute output translates into an awful lot of menus, in double-quick time.

This printer could be a valuable addition to a small print-shop. It might not make economical sense purely to print card stock, but it still has all the very useful features of the regular CL30.

### Macworld's buying advice

It's a pricey printer, but it has all the good points of the original CL30, like 30 page per minute speeds in colour, A3+ output, great colour, plus an expanded range of capabilities.

The ability to print on heavy stock could be very profitable to a commercial printer in the right circumstances. So depending on what kind of work you do, it could be worthwhile spending the extra money. If not, the CL30 remains a top A3 colour-laser option for £2,000 less.

**David Fanning**

Upgraded laser printer

## CL30 HSE

**Manufacturer:** Xanté
www.xante.com
**Distributor:** Info Tec
0870 742 0802
**Pros:** A great printer; now handles heavy card stock.
**Cons:** The extra feature doesn't come cheap.
**Min specs:** Mac OS 9 or OS X.
**Price:** CL30 HSE, £5,999; CL30D HSE, £6,499; CL30HC HSE, £7499. Prices exclude VAT.
**Star Rating:** ★★★★/8.5

9
X

I've never been a fan of multi-function devices – they so often cater for the lowest common denominator, and lack the fancy tricks of a single-minded printer or scanner. All-in-one devices are, however, the fastest growing sector of the inkjet printer market. I tried the HP PSC 2510 to see if my prejudices could be quelled, and I was pleasantly surprised.

The PSC (printer, scanner, copier) actually does more than the acronym suggests. There's also a fax feature, Wi-Fi access, and camera-card slots. So this is no one-trick pony, I counted at least five major features right from the get-go. Getting so much in one box definitely made me think about how much clutter I could rid myself of, especially if I owned a printer, copier, fax machine, scanner and flash-card reader.

My complaints about the printing capabilities of all-in-ones don't apply here either. It has interchangeable print cartridges that let the user print everyday colour or, using the optional extra colour-cartridge, print in six-ink photo-quality colour. Using this setup kicks the Photoret IV technology into action, which means the output is grain-free. Normal printing is decent too, and every mode lets you print borderless images.

If you don't want to print from a computer, there are readers for nine types of media cards, which I covers all options. There is a generous 6.4cm LCD display so you can see what's printing. To further ease your computerless photo-printing you can make a contact sheet with thumbnails of images, then simply mark with a pen the images you want to print and put the sheet on the scanner. The scanner looks at your selections and prints out the chosen images full size. The scanner also works independently, so you can scan old-fashioned analogue pictures too. It also has a paper sensor so if you put high-quality glossy paper, the printer adjusts to the highest quality setting. Frankly, if this thing was any more intelligent I would have to start pulling the plug on it as it sings Daisy Daisy.

Inkjet printers aren't generally known for their connectivity – it's usually limited to USB. Not so with the 2510 – it has Ethernet, which is great, and 802.11b Wi-Fi connectivity, which is even better. The setup didn't go as smoothly as I would have liked, though this is more down to the network here at Macworld than anything else. There didn't seem to be a hit in performance printing wirelessly, which is a plus.

### Macworld's buying advice

I'm a convert as far as the all-in-one jack-of-all-trades machines go. The PSC 2510 offers just about everything I could want in one neat package. Not only that, but it does all these things as well as the individual components would, with added intelligence.

**David Fanning**

Outstanding all-in-one

## PSC 2510 Photosmart all-in-one

**Manufacturer:** HP
www.hp.com/uk 08705 474 747
**Pros:** It does everything you could wish for; and it does it all well.
**Cons:** The photographic ink is interchangeable rather than always there.
**Min specs:** G3; USB; Mac OS 9.1 or OS X.
**Price:** £349 including VAT.
**Star Rating:** ★★★★★/9.1

***Not just the fax***

*Historically, faxing and Macs haven't mixed well. Not so with the 2510 – it doesn't rely on the Mac so much, and plugs straight into the telephone socket. It worked first time, which I found amazing. While faxing remains a bit of a throwback in technological terms, plenty of people still use it.*

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For sharing complex documents, PDF files are hard to beat, and PDF is the most popular format for distributing downloadable forms on the Web. Although Adobe Acrobat lets you create and edit PDF files with ease, its £304 (including VAT) price is too steep if you need only to rearrange a few pages, add graphics, or complete a digital form. SmileOnMyMac's PDFpen 1.1 promises to give you control over your PDF files for a lot less. Alas, its low cost is offset by poky performance and a handful of bugs.

Like Apple's Preview, PDFpen sports a toolbar that lets you click your way through a document in both directions, or zoom in and out. Instead of Preview's drawer, which displays only a column of miniature pages, PDFpen's multipage view fills the document window with as many thumbnails as can fit, along with optional page numbers (see "Pages galore").

PDFpen's annotation tools are a mixed bag. The ability to insert pictures – including other PDF files – in a file is handy, and the program even lets you resize and crop imported graphics. But the Text tool is slow to respond. And when you drag a text box around, there's an annoying lag.

PDFpen sorely needs an alignment tool for text-annotation boxes and imported images so that inserted text and images line up properly.

The Find command, (unlike Preview's and Acrobat's) does not let you search a document for a specific word or phrase, and it can't search text annotations, as claimed. It just doesn't do anything useful. SmileOnMyMac is aware of the problem.

For now, if you just want to combine PDF documents, Monkeybread Software's Combine PDFs (www.monkeybreadsoftware.de/Freeware/) does the job just fine, and it's free.

### Macworld's buying advice

PDFpen 1.1 is an unfulfilled promise. But with a modest speed boost and a few bug fixes, PDFpen could become an indispensable, reasonably priced utility.

**Franklin N Tessler**

PDF creation tool

## PDFpen 1.1

**Manufacturer:** SmileOnMyMac
www.smileonmymac.com
**Pros:** Multipage view for long documents; lets you resize and crop imported graphics.
**Cons:** Slow; limited Find function; flawed multiple-page-selection feature.
**Min specs:** Mac OS X.
**Price:** $30 online.
**Star Rating:** ★★★/6.1

***Pages galore***

*The multipage view lets you rearrange or delete pages, but using the shift and ⌘ keys to select multiple pages doesn't work consistently. Dragging pages around the document window felt sluggish on my Power Mac G4.*

Portable speakers

## inMotion

**Manufacturer:** Altec Lansing
www.alteclansing.com
**Distributor:** EuroTech
0870 458 0011
www.euro-tech.co.uk
**Pros:** Apple-like design; charge/sync dock; slim, protective case; loud.
**Cons:** Limited stereo; pricey.
**Price:** £109.95 (including VAT).
**Star Rating:** ★★★★/8.2

## TravelSound

**Manufacturer:** Creative
http://uk.europe.creative.com/estore/
**Pros:** Stylish; compact; loud.
**Cons:** Not exactly stereo.
**Price:** £49 (including VAT).
**Star Rating:** ★★★★/8.0

Multi-gigabyte iPods allow us to take our giant music collections on holiday with us. The two speaker systems on test here are smart and portable. Both operate on either four AA batteries or via the mains.

On each, the speakers are placed very close to each other, so you'll only get an inkling of stereo if you stick your head about five inches from them. TravelSound includes something called Wide Stereo Effect that "makes it seem as if your speakers are placed further apart than they really are" at the flick of a switch. I couldn't tell the difference, but Macworld's top ears tell me that they could notice that it boosted the mids – which makes the sound a mite punchier but does little for stereo appreciation.

The **inMotion** portable audio system (right) is a lightweight battery-operated stereo system designed especially for the iPod – matching its slim white looks. Sound quality is decent, and the maximum volume is ear-splitting. It folds up into a neat, slim and protective box (20.3cm wide, 13.7cm deep and 3cm thick), making it look like half an iBook. It weighs in at 425 grams.

The company claims that the four batteries will keep pumping out the tunes for 24 hours.

The great thing about the inMotion is its power-charging and iTunes-synchronizing dock. When the system is plugged into the mains, your iPod never runs dry. (It doesn't charge when inMotion is running on batteries.) The latest iPods connect just like they do in Apple's dock. Add an iPod Dock Connector to FireWire Cable (£15), and you can link it up to your Mac for iTunes updates.

Older iPods – or laptops – connect via an audio cable that lets the look down slightly by not conforming to the all-white uniform. This option obviously doesn't charge the iPod. A plastic cover hides the FireWire connector. The iPod mini (see page 48) is not supported by inMotion.

The Creative **TravelSound** speakers (left), which can also connect to a laptop, are more compact than inMotion, but are similar in that they are light and foldable and can be powered by batteries (35-hour life claimed) or mains.

Again, the sound is excellent, and the top volume is enough to fuel a small house party – although it distorts near the top end more than the inMotion.

As it's not designed specifically for the iPod, there's no charging or synchronizing via the TravelSound. It is, however, a lot smaller, measuring 15.4-x-5-x-6.5cm, and half the price. One minus point is the bulk of the mains-power cable and adaptor, which is more of a handful than inMotion's one-piece – detracting from portability.

### Macworld's buying advice

inMotion will attract many with its Apple-like good looks. Its synchronizing and charging dock set it apart, but its price is rather steep. TravelSound is cheaper, smaller and lighter (320g minus the power supply). The silver model looks great next to a G4 PowerBook, and the white version matches the iPod and iBook.

**Simon Jary**

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Footage organizer

## FootTrack 1.6.1

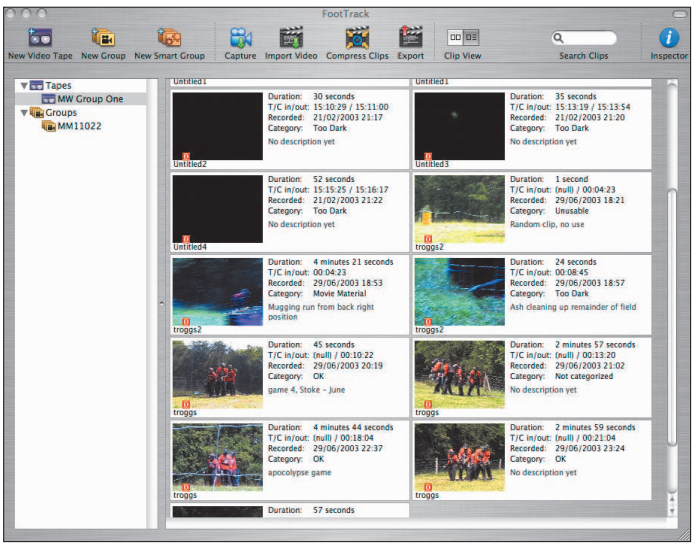
**Publisher:** T-Squared Software www.foottrack.com
**Pros:** Inexpensive; decent user interface; practical.
**Cons:** No direct text-editing; no slideshow facility of poster clips.
**Min specs:** Mac OS X 10.2; 180MB hard-drive space per compressed 60-minute tape; video camera compatible with iMovie and Final Cut.
**Price:** $39.95 (buy online).
**Star Rating:** ★★★★/8.5

T Squared Software accurately describes FootTrack as 'iPhoto for digital video'. The interface borrows from the classic 'iApp' look with the usual brushed aluminium windows. Despite being designed by a third party, FootTrack immediately feels like part of the OS.

Footage can be imported from iMovie or Final Cut (both Express and Pro variants), or captured direct from DV or analogue tape. As with Final Cut, should the source footage be DV, the timecode information is captured alongside the footage.

All footage, regardless of source, can be renamed, have its poster frame changed and a description added in a text box. This description element becomes all the more important when searching for clips at a later date. Imported/captured footage can then be arranged as groups or smart groups for convenience and all footage can be searched by all manner of criteria.

The more footage a user has, and the more effort they spend logging and describing each clip, the more indispensable they are likely to find FootTrack. The only real restriction of the shareware version is that it's limited to two tapes worth of cataloguing so even the slightly curious are advised to give it a whirl.




### Macworld's buying advice

While still in need of a few nips and tucks (the lack of direct description editing being a distinct pain), FootTrack is piece of software likely to go places.

While great attention has been lavished on movie-making software, little has been done to aid the scores of video users who simply require an album for their countless hours of footage.

FootTrack is both easy to use and genuinely useful and considering the asking price, an essential purchase for the shoot-happy videographer.

**Ben Frain**


Macworld.co.uk Subscribers can search Macworld's Reviews database online (www.macworld.co.uk), updated throughout the month

Quality earphones

## E5c in-ear headphones

**Manufacturer:** Shure
www.shuredistribution.co.uk
020 8808 2222
**Pros:** Beautifully presented; sound fantastic; light-weight; cool looking.
**Cons:** Extremely expensive; lacks the bass of bigger headphones.
**Min specs:** Ears.
**Price:** From £370 including VAT (street price). List price is £499.
**Star Rating:** ★★★★/8.2

The iPod is renowned for being the best MP3 player bar none, but it is also renowned for being the most expensive personal stereo around too. Imagine spending £399 on an iPod and listening to it with £29 earphones. That's like getting a Nakamichi amp and plugging in Amstrad speakers. For those of you with higher expectations for audio quality, Shure has the ultimate in in-ear luxury – the E5c headphones.

Before I tell you all about the E5cs there is something you should know. They are expensive… very expensive… almost as much as a 40GB iPod expensive. Bear that in mind as I try to convince you that £370 isn't an insane amount of money to spend on headphones.

You know you're buying from the top of the range the minute you open the box. The E5c headphones come in a brushed-metal case that puts the iPod's still-tasteful packaging to shame. Inside there is a carrying case, seven sleeves to fit all ears, level attenuator (that's volume control to you), and the headphones. The headphones have dual micro-speakers, with extended frequency response. As far as I can tell, it's like having two pairs of the E3c models in your ears at once.

The design is bigger than the E3c, but they actually feel lighter. This is in part due to the memory fit cable. By memory fit, they mean the wires are stiff, so you can shape them to your ear, using the same over-the-ear design as the other Shure in-ear models. At first I found this a bit confusing, and it took a while to get them right. Once you have them the right way around, they fit well, although they're so light they sometimes feel loose. It feels like they're falling out, but after two weeks' use, they never have.

Of course, all the accoutrements are a distraction from the main event – the sound. In a previous review, I noted that the E2c headphones were twice as good as the Apple headphones, and the E3c model was twice as good again. The E5c headphones are more than twice the price of the £150 E3c models, so expectations were high.

One of my favourite audio tests is to listen to the Cocteau Twins, and if I can hear what she is blathering on about it's a pretty good indication that the audio quality is good. The E5c passed with flying colours. It also passed the classical, rave, Hendrix, Simon and Garfunkel, and Led Zeppelin tests. If there is any weakness in the sound it is probably the bottom end of the range.

It's better than most headphones, certainly the best in-ear option, but it can't match the booming bass punch of the Sennheiser HD 280 DJ style headphones (£99; ★★★★/8.7 April 2004). Of course, these are so big that it's like hanging speakers off your ears, so the E5c is still the best mobile option.

### Macworld's buying advice

These headphones are excellent, but they aren't twice as good as the £150 version. They're better, just not *twice* as good. Some people wouldn't spend £370 on headphones if they won the lottery; some people would spend their last £370. I would spend £370 on these headphones – if I won the lottery. In the meantime, I'll covet them from afar.
**David Fanning**

Disc-burning tool

## Dragon Burn 3.1

**Publisher:** NewTech Infosystems www.ntius.com
**Pros:** Simultaneously records to multiple burners; clear multi-session interface.
**Cons:** Multi-session DVD burning doesn't work properly; poor AAC conversion; strips titles from audio files.
**Min specs:** Mac OS X 10.1.5; 128MB RAM; 20MB hard-drive space; CD/DVD burner..
**Price:** $46; download, $40. Buy online.
**Star Rating:** ★★/4.1

***In session***

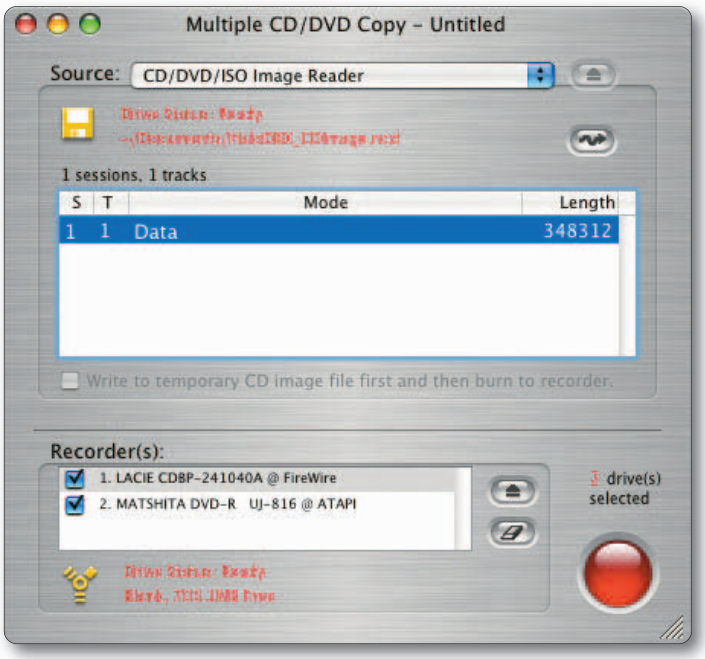
*Dragon Burn also makes the creation of multi-session CD-R discs – discs you've recorded data to multiple times – very easy. It gives you two recording options when you're ready to record a disc – Disc and Session. Theoretically, all you need to do to create a multi-session disc is click on the Session button.*

Dragon Burn 3.1.17, an inexpensive disc-burning application, promises intriguing features that the Mac OS and Roxio's Toast 6 Titanium do not offer. Among these features are simultaneous burning on multiple recorders, multi-session DVD-R burning, and conversion of an iTunes playlist's AAC files to AIFF files for an audio CD. Regrettably, too many of its features work poorly (or not at all).

Before citing Dragon Burn's failings, let's talk about what it does well. Unlike OS X or Toast, Dragon Burn lets you load a disc-image file into the program and burn it to multiple CD and DVD burners at the same time. This can be a time-saver if you've a couple of CD burners and need to make several copies of a disc.

I say "theoretically" because multi-session burning isn't an option for DVD-R discs, and doesn't work properly with DVD-RW media. The program writes the first session to a DVD-RW disc, but when you later insert that disc into a Mac's DVD drive, it isn't recognized. Worse, I couldn't eject these discs without rebooting my Mac while holding down the mouse button.

Although Dragon Burn 3 imports iTunes playlists that include AAC files and burns these as an audio disc, the resulting files sound noisy and distorted. When you rip an audio disc and convert the resulting files to another format, title information




changes to a meaningless mix of letters and numbers – Peter Gabriel's Red Rain, for example, changed to dbxt16531729.mp3.

### Macworld's buying advice

A disc-burning program – even one that costs so little of your hard-earned cash – that fails to deliver on its promises is no bargain. If the disc-burning features built into OS X aren't extensive enough for you, spend the money to get a disc-burning application that works – Roxio's Toast 6 Titanium.
**Christopher Breen**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Spell-casting fun

## The Sims – Makin' Magic

**Publisher:** Aspyr www.aspyr.com
**Distributor:** Softline, 01293 827 900
**Pros:** The game promises magical delights…
**Cons:** …But takes a lot of work to get there. Like other expansions, buy extra RAM for your Mac.
**Min specs:** Mac OS 9.2.2 or Mac OS X 10.1; 500MHz G3; 192MB RAM; 4MB VRAM; 1.3GB additional hard-drive space; QuickTime 4.1.2.
**Price:** £30 including VAT.
**Star Rating:** ★★★★/8.1

9

X

The final Sims expansion pack, Makin' Magic, may be the last edition of the continuing adventures of my 'Dead Popstars' neighbourhood. My Hippy Icons family is the obvious magic litmus test.

Family member Ken Kesey had his magic bus, so now he gets a magic wand – but is he good at cooking? Cooking? Yes – finally, an expansion pack centred on the skill that you hardly ever need for career paths. Veteran players know you need at least two cooking skill points to avoid fatal accident or fire, but that's it for cookery. Not so any more – so, sharpen those knives and start boiling the water.

Install the pack and a mystery man appears at the door. He leaves a box containing Magico's Magic Starter Kit: a wand charger, spellbook, and basic ingredients. The spellbook holds 21 mystery spells to make in the wand charger or charm maker.

Magic Town is the new shopping/residential area with three spooky-looking houses by the misty river. You can live there when you grow in skill. Six areas let you shop, barter for spell ingredients, eat, have magical duels, perform onstage, earn magic coins and enjoy spooky rollercoasters and haunted mini-golf. If you meet, a character in each area sends you on quests for special ingredients, rewarding you with precious ingredients for your own spells.

There are 175 new items – so when home, magic Sims churn butter and make honey for profit, or spells. You'll grow grapes and berries as ingredients, or make wine to barter for more in Magic Land. You can practice cooking in the new baker's oven (but be warned: do use a recipe).

When you grow magical enough, weird things are supposed to happen around the home. I played solidly for two days and didn't get the promised magic beanstalk, toadstools or haunting, though Kesey's dining-room table intermittently disappeared.

### Macworld's buying advice

Unlike other packs, there's no visible career progression here. Makin' Magic is more a kind of semi-profitable sideline, or occult downsizing for stressed out post-materialist Sims that want to dump their day job. Visually, it's pleasing – spells are fun and visual, and it adds a touch of Harry Potter to the game.

While it isn't the best expansion pack (if you buy only one, get Superstar), it integrates well with the preceding expansions – a love potion, for instance, is very handy on a Hot Date. Makin' Magic is an enchanting finale for The Sims. Watch this space, though – The Sims 2 should ship late this year. I'm excited.

**Lisa Rocket**

***Be careful***

*Magic isn't safe: spells go bad, too. I found a house-cleaning spell that summoned an evil spirit who destroyed every mechanical item I owned.*

Lara lara laffs

## Tomb Raider: Angel of Darkness

**Publisher:** Aspyr www.aspyr.com
**Distributor:** Softline, 01293 827 900
**Pros:** Lara looks great; new moves; interactive storyline; hand-to-hand combat.
**Cons:** Dated format; fiddly controls; massive system requirements.
**Min specs:** 1.2GHz G4; Mac OS X 10.2.6; 256MB RAM; 32MB Radeon 7500/GeForce 2MX graphics card.
**Price:** £39.99 including VAT.
**Star Rating:** ★★★★/8.6

X

Lara Croft is the biggest star of video gaming since Mario, and her movies are much better than his. It's been a while since Lara was swashing buckles, robbing tombs and killing endangered species (such as dinosaurs!). But the pneumatic heroine is back, out of retirement and ready to save the world again.

The Angel of Darkness story goes like this: Lara is accused of murdering her former mentor. She goes on the run, and is in a race to find five 14th century paintings before a time-travelling alchemist gets them and unleashes their terrible powers on the world. But nobody plays Tomb Raider for the story line – it just slows down the action. All I want to do is race around shooting, and look at Lara's bum. That's exactly what you get with this game.

The developers are keen to prove that Lara isn't just a mindless shoot 'em up. Although you can pretty much cruise around this game shooting people, in an attempt to make it more cerebral you must develop Lara's skills and strength. You are rewarded for puzzle solving and exploring by way of improvements to your brain power, upper body strength and jumping ability. There is also much more interaction with other characters. Instead of the preset cut-scenes, Lara actually gets to choose what to say to the other characters. Depending on what she says to whom, the storyline changes.

The new moves include stealth attacks, which add a new dimension to the game. However, oftentimes you can go in with all guns blazing and achieve the same effect – just quicker. Lara can now get physical with hand-to-hand combat, with no weapons at all.

### Macworld's buying advice

This is the best Tomb Raider yet, but the format looks dated. The controls are clunky and Lara's movements can be unpredictable. She has always been like this, but it seems like it should work better now. She looks like she's nimble and athletic, but sometimes she moves like an arthritic dinner lady. I like this game, but I can't tell how much of my fondness of it is due to the retro feel to it all.

**David Fanning**

***Keep it real***

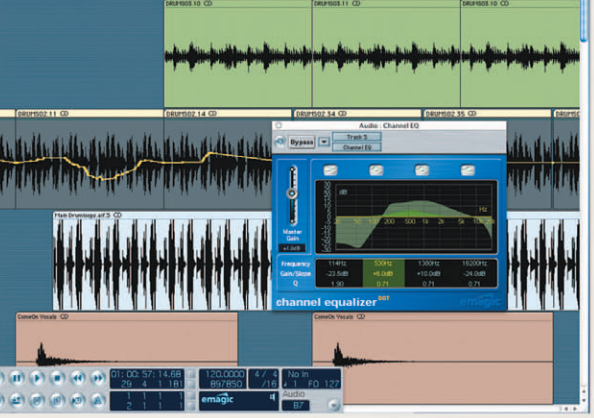
*The graphics capability of Macs has greatly improved. If you've a modern machine, the graphics will knock your socks off. Lara and her surroundings are more detailed than ever. She has tons of new moves and everything is simply more realistic. Well, as realistic as you can get with time travelling alchemists…*

# Mac music studio

## Mac-based recording setups to fit any budget. By Mike Collins

Apple's latest mission seems to be to persuade every musician to buy a Mac. Lots of you are already convinced, and plenty have already taken the plunge. Nevertheless, there are people who remain to be convinced – and others who want to know the main options before upgrading or buying a new system. Mike Collins, our resident music guru, walks you through the garden of plenty that the range of Mac-based music tools has become, recommending a selection of choices for the more discerning user.

*continues page 70*

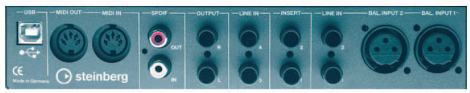



***iMac***
*The 20-inch iMac is ideal due to its larger viewing area and number of peripheral ports.*

***Logic Express 6***
*The cut-down version of the pro software is more than enough for most users.*

***Speaker your mind***
*The M-Audio Studiophile BX5 powered speakers put out 75 watts of amplification.*

***Cubase System 4***
*Steinberg's latest offering (right and below) includes the MI4 USB audio/MIDI interface and Cubase SL software.*



# Entry-level system

**Expect to pay between £2,500 and £3,500 for a decently specced entry-level music system.**

***You can be Shure***
*The Shure SM58 dynamic cardioid microphone is a great all-rounder and costs just £70.*

You can cut corners on this if you are on a budget, but don't skimp on the computer system – you can always add extra software and hardware later on. Also, you may not need a MIDI interface for a small setup with just one external keyboard controller and perhaps one external synthesizer – the MIDI keyboard or the audio interface will have a basic MIDI interface. You can always add a more capable unit if the system grows.

## Entry-level hardware

For beginners, the **20-inch iMac** does a great job. The wide-screen display has plenty of space for windows, and you can adjust the height or angle at a touch. Inside is a 1.25GHz G4 processor, 256MB of RAM (expandable up to 1GB) and an 80GB 7,200rpm hard drive. It also has two FireWire 400 ports, three USB 2.0 ports, and two USB 1.1 ports on the keyboard – so you can connect lots of peripherals. Plus, it has a DVD-R SuperDrive for backing-up work to CD and DVD. The standard 256MB of RAM is definitely not enough. Adding another 512MB would be a minimum – and maxing it out to 1GB would be better.

The 80GB hard drive can be used for recording audio, but you should be using an external drive for best results. If you must record to the internal drive, then you should partition this into at least two volumes before working with it. If possible, choose the larger 160GB internal drive option – audio files are big! Of course, with the larger hard drive and an additional 512MB RAM, the price of the 20-inch iMac system increases from £1,749 to £1,918.

It isn't necessary to buy extra audio hardware to run an entry-level music system on an iMac. It has a basic audio system built in with an audio line-input and speaker jack output. However, you cannot plug a microphone or guitar into a line input – and these connectors are extremely flimsy, and will break if used regularly. Digidesign's £363 **Mbox** comes with Pro Tools LE software and can be used with most music tools such as Cubase or Logic. It has just two microphone inputs and a pair of analogue outputs, plus S/PDIF digital I/O.

Even better is Steinberg's latest offering – **Cubase System|4**, priced at £399. This includes the MI4 USB audio/MIDI interface and Cubase SL software. System|4 lets you record and monitor up to four input signals simultaneously at up to 24-bit/96kHz quality, and the two microphone preamps let users deploy any microphone type. So, for instance, you could record acoustic instruments in stereo while listening to a second stereo source such as a keyboard mixer – or you could record four mono line-level sources at the same time.

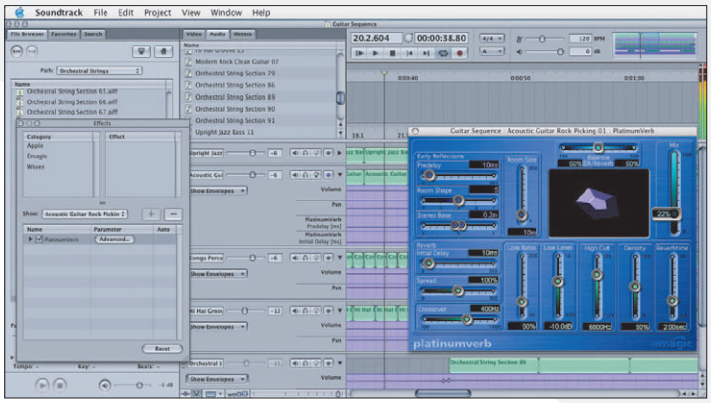
S/PDIF digital stereo I/O lets you hook up a CD Player or Mini-Disc Recorder, and a pair of MIDI sockets let you connect MIDI gear. A MIX knob adjusts the balance between direct and computer playback signals for zero-latency monitoring, and when recording a guitar or a monophonic microphone, this will appear in the centre of the headphone mix, instead of just at one side – courtesy of System|4's unique Auto-mono switching feature.

You'll probably need a MIDI keyboard, a microphone and a pair of powered speakers. We recommend the £79 **M-Audio eKeys 49** entry-level USB MIDI controller keyboard. This has 49 full-size, velocity-sensitive keys, a MIDI interface, pitch and modulation wheels, and a sustain-pedal input. Compliancy with OS X means it can be used right away – no messing about installing drivers.

If you have to choose just one versatile microphone for vocals and instruments, this has to be the **Shure SM58** dynamic cardioid model, which retails for around £70.

The Apple Pro speakers typically supplied with the iMac are fine for listening to MP3s, but they aren't good for recording, editing and mixing music. We recommend

***Cheap keys***
*The eKeys 49 USB MIDI controller keyboard has 49 full-size, velocity-sensitive keys, a MIDI interface, pitch and modulation wheels, and a sustain-pedal input.*



the **M-Audio Studiophile BX5** powered speakers. Featuring 5.25-inch low-frequency drivers, one-inch high-frequency drivers, and 75 watts of amplification, they can be purchased for as little as £230 a pair.

## Entry-level software

Steinberg's **Cubase SL**, with a street price of around £250, features unlimited MIDI and audio tracks and has 16 virtual instrument slots with a complete set of VST Audio and MIDI plug-ins. It offers most of the features of Cubase SX with the exception of surround mixing and advanced score-editing. It doesn't limit the numbers of audio or MIDI tracks that you can use – although it's restricted to a maximum of 128 physical inputs and outputs compared with SX's 256. Like its sibling, it includes Key, Drum, List, and Score editors. Ease-of-use is a key feature, especially compared with Logic – which can be fiddly in comparison.

Apple's **Soundtrack** (£149) lets users assemble original compositions by stringing together selections from its library of more than 4,000 loops and sound effects – with a minimum of musical expertise required. Just drag audio files from the file browser at the left of Soundtrack's window into tracks in the main part of the window. These appear as blocks of audio data, typically playing for four, eight, or 16 bars. Once you have a sequence playing in the timeline, click on any loop in the file browser and this will play along at the correct tempo so you can decide whether it suits. Set a Snap value of 1/4 note, 1/16 note, or whatever, and drag the audio blocks around to arrange them the way you like.

You can change the pitch of any audio block and change the tempo of the sequence at any time – even while playing back. The audio quality of the pitch-shifted or time-stretched audio is acceptable unless moved a long way from the original. So, find some interesting guitar picking or keyboards, then choose basslines and drum patterns until you have the rhythm tracks sorted.

Add melody instruments from the library or record a melody instrument or vocal directly into Soundtrack to complete the composition. When satisfied, adjust the volume and pan controls for each track, double-clicking to add breakpoints to the envelopes, and dragging these to set values. Soundtrack includes a selection of Apple AU and Emagic plug-in effects. Finally save the mix using the Export Mix command or export the individual tracks as AIFF files using the Export Tracks command.

Apple's **GarageBand** is a cut-down version of Soundtrack with a smaller library and a reduced set of audio features compared with its stablemate – but with the benefit of MIDI recording and software instruments. It comes as part of Apple's £39 iLife '04 creative-software suite, so it's great value. Like Soundtrack, GarageBand features a loop browser for accessing the supplied loops. These are typically just a few bars long and are ready to use – with the tempo and the key marked. Just drag loops to tracks and then along the timeline to arrange them as you like – snapping to grid positions along the way. They automatically play at the tempo and key of the project. So far, so like Soundtrack. The great thing about GarageBand is that it incorporates an extensive set of Software Instruments including drums, guitars, pianos, organs, and synthesizers. You can record into Software Instrument tracks using a MIDI keyboard or the on-screen keyboard. Track editor can change the notes you record. Real instruments or vocals can be recorded directly into GarageBand – and the Real Instrument tracks have a great selection of plug-ins to choose from, including simulations of popular guitar amplifiers. When finished, you can export as a stereo AIFF file into the iTunes folder within the Music folder in your Users account. What you can't do with GarageBand is play external synthesizers – Cubase or Logic are needed for this.

**Logic Express**, priced at £199, lets users import audio created elsewhere, such as in Soundtrack or GarageBand, directly into its Audio window. From the Audio window, you can drag tracks into the Arrange window, where they can be further edited and arranged. Logic Express has over 30 signal-processing plug-ins, the EXSP24 sample player, the ES1 virtual analog synthesizer and the EVP73 vintage electric-piano. So, using Logic, you can add MIDI tracks, virtual instrument tracks and more audio tracks to develop a project much further. You can work with up to 48 stereo or mono audio tracks, at up to 24 Bit/96 kHz resolution, and a maximum of 12 simultaneous inputs and outputs are supported. Up to 128 MIDI ins and outs are supported, with unlimited MIDI tracks. The editors, borrowed from Logic Pro, include the Matrix Editor, Event List, Hyper Editor and Sample Editor. Logic Express also features comprehensive scoring, so you can view and print music scores, lyrics, guitar tab and much more.

If you regularly edit stereo audio files, then you need Peak – the Mac's leading waveform editor. With **Peak 4 LE**, you can record a voiceover for a PowerPoint presentation, edit your music mixes, create MP3s for the Web, or convert your vinyl collection to CDs in a few simple steps. Then, when you're ready, burn audio CDs. And it will only cost you £89.

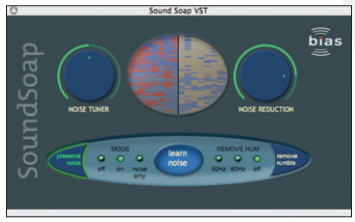
If you need to clean-up old records, try **BIAS SoundSoap**. This works stand-alone or as a VST plug-in. Costing £99, SoundSoap scrubs audio clean – dramatically reducing hiss, buzz or hum, rumble and most other types of noise. And you don't need to be an audio expert. Just click the one-step Learn Noise button, and SoundSoap automatically cleans your audio.

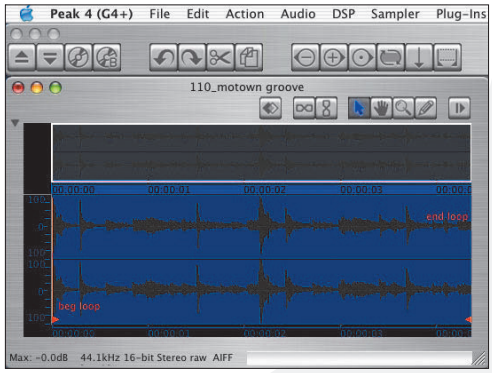
*continues page 72*

***Soundtrack (above, left)***
*Soundtrack can be used for composing, stringing together loops and sound effects.*

***GarageBand (above, right)***
*GarageBand incorporates Software Instruments, and lets you use a MIDI controller keyboard to play and record tunes on the fly.*

***And vinyly***
*Clean up vinyl static and tape hiss with SoundSoap (below) and convert vinyl to CDs easily with Peak 4 LE (bottom).*

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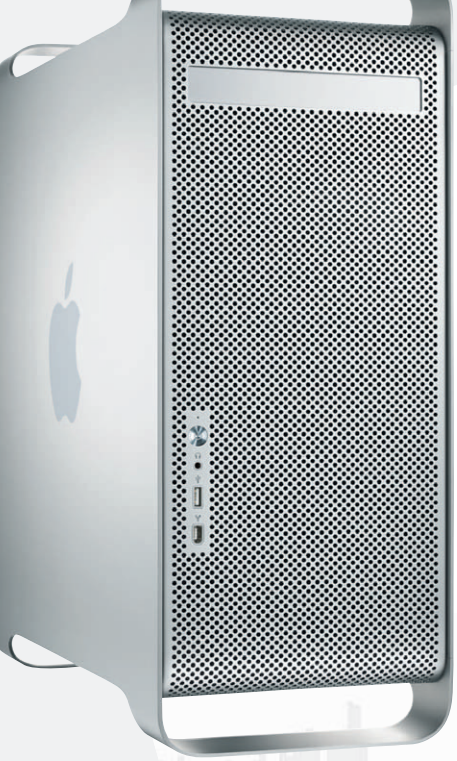


***Power Mac G5***
*If you want to run lots of plug-ins and virtual instruments, you'll need the extra processor to handle them.*

***Digi do***
*The Digi 002 has an integrated mixing control surface.*

***Versatility is key***
*The AKG C414 B-ULS can be used for anything from vocals to orchestras.*

***In and out***
*The Mark of the Unicorn MIDI Express 128 provides high-speed MIDI throughput and plug-&-play expansion.*

# Intermediate-level system

**You should expect to pay between £5,000 and £7,500 for an intermediate-level music system.**

***Speaker your mind***
*Mackie's HR824 near-field monitors are a decent choice for monitoring.*

## Intermediate hardware

At this level, we strongly recommend the **dual-processor 1.8GHz Power Mac G5**. The reason is simple: if you want to run lots of plug-ins and virtual instruments, you'll need the extra processor to handle them. This computer comes with 512MB of RAM, but you should install at least 1GB – 2GB or more would be better if you plan on using RAM-hungry samples. The internal drive gives you 160GB, and you should immediately partition this into two or three volumes if you plan to record audio to the internal unit. Ideally, use external 7,200rpm or 10,000rpm FireWire drives. If you intend to install sample libraries, install a fast additional internal drive to hold them. You'll also need at least a 20-inch display. Alternatively, a pair of 17-inch displays works well for Pro Tools with its Edit and Mix windows, or for Logic or Cubase, which have even more windows. A 1.8GHz G5 system from the Apple Store with 1GB of RAM, a pair of 17-inch LCD displays, and a pair of 250GB internal hard drives will cost you £3,612. You'll cut expenses by shoppping around. Try MacQuote (**www.macquote.co.uk**) or the ads at the back of Macworld.

For audio hardware, there are many options in the mid-price range between £800 and £2,400. One way of narrowing the choice is to consider whether you want Pro Tools for compatibility with pro studios – in which case you need to buy Digidesign hardware. I recommend the **Digi 002** with its integrated mixing control surface at around £1,750, or the Digi 002 Rack at around £940, which provides the audio interface and Pro Tools LE software, but without the control surface. Working with your computer through a single FireWire connection, Digi 002 pairs Pro Tools LE software with a mixing control surface, and incorporates audio and MIDI interfaces. It has eight touch-sensitive, motorized faders and eight motion-sensitive rotary encoders for pan, send, meter, and plug-in control. Ten scribble-strip displays are provided to show the track name, pan, send, fader, plug-in values, and timeline position for each channel. The rear panel has eight channels of ADAT optical I/O, two channels of S/PDIF I/O, eight analogue inputs and eight analogue outputs. It also has four microphone pre-amps – each with individual gain and high-pass filter – and 48V phantom power can be enabled on channel pairs. The A/D and D/A converters are 24-bit, 96 kHz. The rear panel has one MIDI In and two MIDI Out ports, so you may not need an additional MIDI interface – especially if you're mostly working with software instruments.

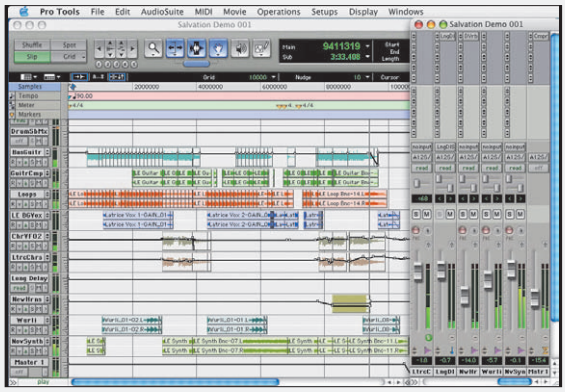
Alternatively, Mark of the Unicorn's (MOTU) FireWire interfaces, such as the **828 Mk II** at around £650 or the **896HD** at £1,089, offer good feature sets and great value. These work with any MIDI or audio software – apart from Pro Tools TDM or LE. The 828 Mk II provides 20 inputs and 22 outputs, including ten channels of 96kHz analogue I/O, eight channels of ADAT digital I/O and stereo S/PDIF. It also has a pair of mic preamps with inserts. The 896HD has eight mic-preamp inputs and eight analogue outputs, providing 24-bit, 192kHz analogue I/O. It also has eight channels of ADAT digital I/O and stereo AES/EBU I/O with built-in sample rate conversion that can use 44.1, 48, 88.2 or 96kHz devices, regardless of system sample rate.

You'll also need a decent MIDI keyboard. The £429 **StudioLogic VMK88** should suit. It features 88 full-size keys with a pitch-bend wheel and aftertouch. The weighted, velocity-sensitive action is a joy to play and it's easy to carry. With eight dual-function knobs, eight dual-function buttons, nine triple-function sliders, four pedals, and a five-button programmable transport section, you can use the VMK-88 as a MIDI control surface as well.

If you'll be using several MIDI keyboards and modules, a multi-port MIDI interface will be required. Logic users will probably go for the £499 **Emagic Unitor 8 Mk2** with

***The keymaster***
*The StudioLogic VMK88 has 88 full-size weighted keys with pitch-bend and after-touch.*

eight MIDI ins and outs and a SMPTE synchronizer. But for most setups, the **MOTU MIDI Express 128** – an eight-input, nine-output, MIDI Interface priced at £249 – is the best choice. This provides high-speed MIDI throughput, sub-millisecond timing accuracy, support for hot-swapping, and plug-&-play expansion – just add a second or third unit if you need more MIDI ports. It does not have a SMPTE-to-MIDI converter, but most people are working with QuickTime video now, so there's less reason to sync to SMPTE.



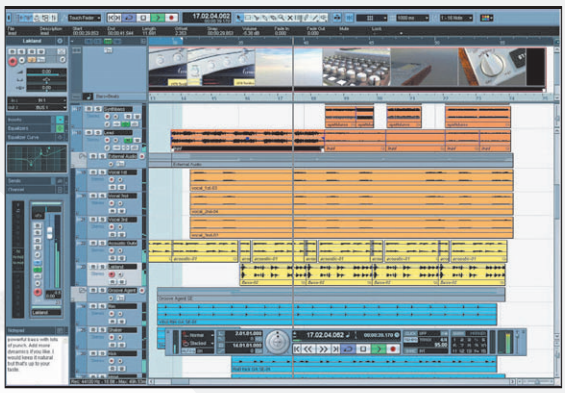

To get audio into and out of the system, you need a microphone and a pair of powered speakers. The most versatile microphone we can recommend is the **AKG C414 B-ULS** – with a street price of around £500. You can use this on anything from lead vocals to an orchestra – and you can buy a matched pair for stereo recording.

For powered speakers, we recommend the **Mackie HR824** near-field monitors, costing £637 each. The high-frequency amplifier is rated at 100 watts with 150-watt peaks, while the low frequency amp puts out 150 watts with 200-watt peaks – so there's plenty of headroom to avoid distortion. The amplifiers have controls for sensitivity, roll-off and high frequency with an acoustic-space switch that allows positioning in corners, against walls or in free space. Both balanced XLR and balanced/unbalanced TRS jacks are provided for inputs. The 1-inch tweeter with its exponential waveguide provides wide dispersion of high frequencies to above 20KHz while the 8.75-inch woofer delivers flat frequency-response down to 42Hz. These speakers provide lots of bottom-end and a comfortable high-end with a wide-mixing sweet spot – just what you need for long sessions.

## Intermediate software

**Pro Tools LE** software, included in the price when you buy a Digi 002 or 002R, supports up to 32 tracks of 24-bit, 96 kHz audio and 256 MIDI tracks. The Mix window has snapshot and real-time automation and a decent selection of signal-processing plug-ins. It also has the most efficient and easy-to-use waveform Edit window currently available. A major advantage is its full compatibility with files from the Pro Tools TDM systems used in professional studios. Pro Tools LE systems now ship with an incredible bundle of software tools and plug-ins. Special versions of Reason, Live, AmpliTube virtual guitar amp, SampleTank software sampler, and T-RackS EQ provide a complete rack of virtual gear and tools.

**Cubase SX 2.0**, with a suggested retail price of £569, is a popular choice that offers a new range of functions especially engineered for film music, multimedia, and music for computer games: the video-thumbnail track, facilities for full-screen output via FireWire, and support for an array of video formats such as QuickTime and MPEG, for example. The new Stacked Recording mode makes compiling the ultimate take quicker, simpler and more efficient than ever, and the new Time Warp wool lets you carry out complex tempo changes and adjustments directly in the Project Window. Cubase SX 2.0 has some of the most user-friendly, efficient editing tools available, and, to keep a clear overview, you can hide controls and other user-interface elements that you don't need. Mixing capabilities have also been improved, with complete plug-in delay compensation across all send, group, FX Return and audio channels – even when using DSP cards such as TC's Powercore or the Universal Audio UAD-1.



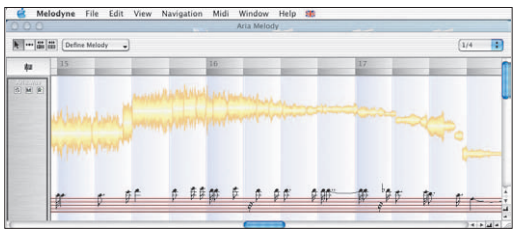
***Orchestral manoeuvres (top left)***
*The Gold Edition Symphonic Orchestra comes with 15GB of strings, woodwinds, brass and orchestral percussion*

***Pro selector***
*Pro Tools LE (top right) and Cubase SX 2.0 (above) are both popular choices.*

**Logic Pro 6**, Emagic's flagship MIDI and Audio software, is aimed squarely at professional musicians and producers. This now incorporates the complete range of Emagic audio plug-ins and virtual instruments, including the EXS24mkII sampler and Space Designer convolution reverb, the EVOC20 vocoder/filterbank, the ES1, ES2, ESM, ESP and ESA synthesizers, and the EVP88 'Rhodes' piano, EVB3 'Hammond' organ and EDV6 'Clavinet' virtual instruments – all for the incredible price of £699. Previously, you would have paid this for the basic software and would have paid over a thousand pounds more for all the extra plug-ins and virtual instruments. At this price, it could be worth buying just to be able to use the plug-ins and virtual instruments – even if you use Pro Tools or Cubase as your main software environment. It's easy to swap projects between current MIDI and Audio packages using the OMF file-interchange format.

Depending on what you want to do with the system, you may also need sample libraries and other software packages. For instance, anyone working on orchestral music will want a library of orchestral samples. The best I've used recently is the **East West/Quantum Leap Symphonic Orchestra** – recorded by classical recording engineer Professor Keith O Johnson in a state-of-the-art concert hall with a top symphony orchestra. Costing £649, the Gold Edition Symphonic Orchestra comes with 15GB of strings, woodwinds, brass and orchestral percussion samples from the Platinum Edition (but in 16-bit stereo rather than 24-bit with multiple mics).

If you're working on song productions and remixes, get Celemony's **Melodyne Studio Edition** (pictured, left), which costs around £430. This analyzes any monophonic vocal or instrumental track and can edit every nuance of pitching, timing, vibrato and so forth. You can also use Melodyne to create perfectly matched harmonies from an original vocal – great for strengthening choruses.




***Amazing value***
*Logic Pro 6 now incorporates the complete range of Emagic audio plug-ins and virtual instruments.*

*continues page 75*

***Dual 2GHz Power Mac G5***
*You'll need lots of CPU power to run RTAS plug-ins and virtual instruments.*

***Digital Performer (screen)***
*This is the thinking person's alternative to Logic Audio or Cubase SX.*

***ATC SCM monitors***
*ATC monitors are widely used in top mastering, orchestral and music studios around the world*

***HD Accelerator card***
*You can expand any HD system by adding extra Accel cards, at £3,338 each, up to a maximum of seven.*

***Interfaces (top to bottom)***
*Prism Sound ADA-8; Apogee Rosetta 800; Digidesign's MIDI I/O; Digidesign 96 i/o.*

# High-end system

**You should expect to pay between £10,000 and £20,000 for a top-of-the-range music system.**

***Mic all night***
*The Neumann M149 (£2,500) will capture details that other microphones just won't reveal*

***Grand (£800 actually) piano***
*The Kurzweil SP88X Stage Piano is a 32-voice polyphonic instrument that includes acoustic grand piano, electric piano, FM electric piano, tone-wheel organ, and strings.*

## High-end hardware

At the high-end, there's only one choice of computer – the **dual-processor 2GHz Power Mac G5** – that is until the 3GHz model appears. Even if using Pro Tools HD2 or HD3 Accel hardware with its powerful on-board DSPs, you'll still need lots of CPU power to run RTAS plug-ins and virtual instruments. We recommend a minimum of 2GB of RAM – and more wouldn't go amiss if you plan on heavy use of samples. An additional internal drive to hold sample libraries would be wise, as are additional drives for audio and video if you're working to picture. For audio, 10,000rpm external drives give the highest track counts. With 2GB of RAM, a pair of internal 250GB hard drives, and a pair of Apple 20-inch Cinema displays, the price of a 2GHz G5 system rises from £2,299 to £5,611.

A major decision is whether to go for a Pro Tools HD system or whether to choose an alternative. Pro Tools HD is available in three configurations: HD 1, HD 2, and HD 3. These include the Pro Tools TDM software, the HD Core Card and either one or two HD Accel Cards with the HD 2 Accel or HD 3 Accel, systems. **Pro Tools|HD 1**, which costs £6,686, provides up to 32 channels of I/O with support for up to 96 simultaneous audio tracks. **Pro Tools|HD 2 Accel**, priced at £8,343, supports up to 64 channels of I/O. The £9,988 **Pro Tools|HD 3 Accel** supports up to 96 channels of I/O. HD 2 Accel and HD 3 Accel systems both guarantee support for up to 192 simultaneous audio tracks.

You can expand any HD system by adding extra Accel cards, at £3,338 each, up to a maximum of seven. The **HD Accel card** supports Digidesign's next-generation TDM plug-ins, including the Impact mix-bus compressor. Third-party companies are also developing advanced plug-ins that will run only on this card.

You need to buy at least one audio interface to get audio into and out of a Pro Tools HD system. For example, the £1,675 **Digidesign 96 i/o** features 24-bit 96kHz conversion and has eight analogue inputs and outputs plus eight-channel ADAT and two-channel AES/EBU and S/PDIF digital inputs and outputs.

You can put a system together based around the Apogee Rosetta 800 and Steinberg's Nuendo software for a little less than the price of a Pro Tools HD system, with higher quality in some respects, or you can go for the Prism Sound ADA-8 and pay at least as much, confident that you have chosen the best available.

The **Prism Sound ADA-8** audio interface is the best money can buy. It will set you back a cool £6,287 for the privilege of owning just eight channels of A-D and D-A conversion – but you do get top-quality sample-rate and format conversion, as well as noise shaping. It supports sample rates up to 192KHz and has optional interface modules for just about anything – including Pro Tools HD and FireWire. What makes the ADA-8 sound so good is its ultimate clock-stability and jitter-rejection – which produce crystal-clear audio imaging. Designed and manufactured in Cambridge, UK, the ADA-8 is used by top artists such as Sting.

If the ADA-8 is the Formula One car of interfaces, the **Apogee Rosetta 800** is the Porsche. Expect to pay between £2,000 and £3,000, depending on options, for eight channels of premium 24-bit AD/DA conversion with sample rates up to 96kHz or, optionally, 192kHz. The basic unit has eight channels of analogue I/O and eight of AES and ADAT digital I/O. You can connect the Rosetta 800 to a Pro Tools HD card with an X-Series-HD card. If using Logic, Nuendo or similar, the Apogee X-FireWire Card can connect the Rosetta 800 to any FireWire-equipped Mac.

With a high-end system, you're likely to have plenty of MIDI equipment that needs hooking up. Digidesign's £415 **MIDI I/O** is a USB-powered, multi-channel MIDI interface for Pro Tools|HD. It has ten MIDI input and output ports and if you need more, up to four MIDI I/O interfaces can be connected to any one Pro Tools system.

*continues page 77*

You'll also need a professional MIDI keyboard. At around £800, professional players prefer the **Kurzweil SP88X Stage Piano**, with its 88-note fully weighted action. This 32-voice polyphonic instrument includes acoustic grand piano, electric piano, FM electric piano, tone-wheel organ, and strings. It also has plenty of controllers, including two ribbons instead of traditional wheels for pitch and modulation, along with a front-panel control slider, a continuous-control-pedal input, and one dual-footswitch input (for two pedals).

The most important analogue components for the system are the microphone that will capture sounds and the powered speakers used to monitor recordings. Our recommendation for a top-of-the-range microphone is the **Neumann M149** – listed at £3,172, but with a typical street price of about £2,500. Whether recording vocals or solo instruments, the M149 will capture details that other microphones just won't reveal.

My top recommendation for speakers has to be the **ATC SCM SCM20ASL Pro** active monitors. These deliver excellent results whether recording, mixing or mastering. ATC monitors are widely used in top mastering, orchestral and music studios around the world. Costing £1,620 each, they use a 6-inch combination mid/bass drive unit and a 1-inch tweeter to deliver performance that you would normally expect only from a large three-way monitor. Each cabinet has a 250W amplifier for bass/mid and 50W for high frequencies – and will deliver continuous SPLs of up to 108dB. Yet even at the highest volume levels, the amp and driver system maintains ultra-low distortion, solid stereo-imaging, and a high degree of linearity. So what you hear is what you get!

## High-end software

**Pro Tools 6.1 TDM** software includes a multitrack waveform editor, a mixing console, and controls and commands to let you record and play back audio and MIDI from hard disk. The Edit window provides a timeline display and lets you edit audio down to sample level. In the Mix window, tracks appear as mixer channel strips with controls for signal routing, volume, panning, record enable, automation mode, and solo/mute. The Mix window lets you balance levels, pan sounds, and process audio using software plug-ins or external devices connected via the audio interface. Pro Tools has been the software of choice for the world's top recording engineers for the last two years, and shows no signs of being supplanted by any of its rivals.

If you're using a Pro Tools system, there will be times when you want to use a more full-featured MIDI sequencer, perhaps to use notation. MOTU's **Digital Performer** (DP) is the thinking person's alternative to Logic Audio or Cubase SX. For me it has the edge over its rivals in terms of its user-interface design. Whether you prefer editing event lists, or graphically, or using notation, or drum-machine style, DP has an editor to suit. Use the sequence editor to display and edit MIDI and audio and use mixer window to balance levels and apply plug-ins.

Available at a street price as low as £229, DP4 offers full compatibility with Pro Tools TDM hardware – and OMF file compatibility lets you easily transfer projects to and from Pro Tools systems. Digital Performer is the best choice of sequencer for working on music to picture – which is why it has been the choice of top film composers for over 15 years.

Of course, you may be looking for a complete alternative to Pro Tools, in which case your best option is Steinberg's **Nuendo**. With a suggested retail price of £999, Nuendo costs about the same as Pro Tools 6.1 TDM software would if you could buy it separately. Nuendo is a better choice than Pro Tools for music production and any kind of work that involves working with MIDI or musical scores. It doesn't lack technical features compared with Pro Tools, and you can use any hardware for which ASIO or Core Audio drivers are available – including the Pro Tools HD and MIX cards. However, there's no DAE support, so you can't use TDM plug-ins. Excellent support for surround sound, comprehensive support for file formats, bit-depths and sample rates, and the first-rate user-interface design all provide compelling reasons to choose Nuendo.

***Pro Tools 6 (top left)***
*Pro Tools 6 has been the tool of choice of top engineers for the past two years.*

***Logic Pro 6 (top right)***
*For those using Logic Express, Logic Pro 6 is a logical upgrade step.*

**BIAS Peak 4.1**, which costs around £350, is the leading application for stereo waveform editing, processing, and mastering. Use plug-in effects to process audio files before mastering, or use DSP processes with the waveform editing tools to perform major surgery on samples. Typically, you will use Peak to carry out specialized edits on mono or stereo sound files and to prepare audio for CD when you've finished mixing in Pro Tools or Nuendo.

No studio setup is complete without some outboard equipment that these days mostly comes in the form of software plug-ins. The **1176 Limiting Amplifier**, **Teletronix LA-2A Leveling Amplifier** and **Pultec EQP-1A** are three of the most sought-after outboard processors used in professional recording studios. Courtesy of Universal Audio, these three classics are now available as a bundle of TDM plug-ins for Pro Tools for around £600.

***Plug-ins (above)***
*1176 Limiting Amplifier (top); LA-2A Leveling Amplifier (middle); EQP-1A (bottom).*

If you're working on vocals or instrumental solos and you are seeking perfection, then you need a copy of **Antares Auto-Tune**, currently at version 3 but with version 4 imminent. Auto-Tune corrects the pitch of vocals and other solo instruments in real-time, without distortion or artefacts, while preserving the nuances of the original performance. Automatic Mode works most of the time, and Graphical Mode lets you manually sort out the trickier bits. Auto-Tune 3 Native costs £279 while Auto-Tune TDM will set you back £369 – so it isn't cheap, but it's worth it for the ease-of-use.

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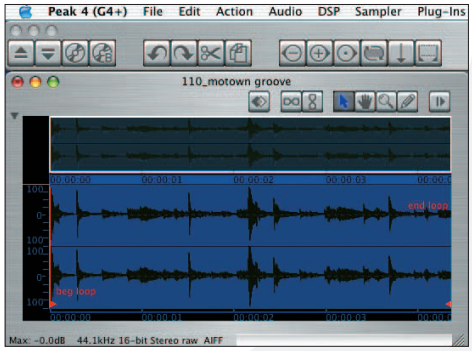



***Peak 4.1 (below)***
*Peak is ideal for mastering – use it to edit after mixing in Pro Tools.*

***Indigo***
*Echo Audio's £99 Indigo interface has two analogue stereo outputs via ⅛-inch mini-jacks.*

***Ozone***
*Ozone has 25 full-sized keys, eight assignable MIDI controller knobs, pitch and mod wheels, a sustain pedal jack, and two MIDI outs.*

***Speakers***
*The Edirol MA10 DBK compact active monitors are magnetically shielded and provide 20 watts of RMS power.*

# Portable system

**Musicians on the move will want a 15- or 17-inch PowerBook with a suitable audio interface, a small MIDI keyboard, some other peripherals such as headphones or a small pair of powered speakers, and a shoulder bag to carry the lot.**

## Where to buy

Recommended dealers include Turnkey (**www.turnkey.co.uk**) for entry-level systems, Dreamtek (**www.dreamtek.tv**) for intermediate-level systems and KMR Audio (**www.kmraudio.com**) for high-end systems. Also check at the back of Macworld for the best prices.

***Pack it in***
*The Studio Pack is a padded nylon bag with space for Ozone, your laptop, and essential accessories.*

## The laptop

The Apple 17-inch PowerBook's mega-wide display provides room aplenty for windows – and the 1-inch-thin body weighs just 6.9 pounds, so it's definitely luggable. Featuring a 1.33GHz G4 processor, up to 2GB of RAM, and with Gigabit Ethernet and FireWire 400 and 800, the **17-inch PowerBook G4** has all the features you need to run a music system wherever you may roam. The backlit keyboard is great when working in a low-light environment such as a music or video studio – and built-in light sensors automatically adjust the keyboard illumination and the screen's brightness based on the available ambient light. The 17-inch PowerBook comes with 512MB of RAM, but you should install an extra 1GB – or take it up to the maximum 2GB if you can afford it. The standard hard drive is a 4,200 rpm 80GB model, but the alternative 5,400rpm model will load and save files more quickly. Bear in mind that you'll need to use an external FireWire drive if you plan on recording lots of audio or using lots of sample libraries. You should also get an extra battery, power adaptor and a backpack if you plan to travel with your PowerBook. All these extras will bump the price up from £2,399 to around £3,500 – but are well worth the money for the convenience they bring.

## The audio interface

If all you need is high-quality monitoring, Echo Audio's £99 **Indigo** interface has two analogue stereo outputs via ⅛-inch mini-jacks – so you can use two sets of headphones or feed outputs to a cassette recorder and a pair of powered speakers. If you need both input and output, the £149 Indigo IO offers one stereo analogue input and one stereo analogue output for its 24-bit/96kHz converters via ⅛-inch TRS jacks.

## Portable MIDI keyboard

If you want to make music with your laptop, you'll need a small keyboard for entering MIDI data, a USB MIDI interface to connect it to the computer, and maybe some knobs and sliders to control software parameters on-screen. The latest development is to incorporate a USB audio interface with a mic preamp as well, so you have one less box and set of cable to mess around with. The new **M-Audio Ozone**, costing just £249, has all this in one compact unit – ideal for use with a laptop.

Ozone has a 25 full-sized keys, eight assignable MIDI controller knobs, pitch and mod wheels, a sustain pedal jack, and two MIDI outs – one from the computer and one from the Ozone keyboard. The 24-bit/96kHz audio interface has an XLR microphone input and preamp with phantom power, a ¼-inch jack input to let you connect a guitar or other instrument, and a stereo aux input via unbalanced ¼-inch TRS jack. There's also a stereo headphone out and a Direct Monitor switch for zero-latency monitoring

If you want to carry your studio on your back in style, £69 will buy you a padded nylon Studio Pack with space for Ozone, your laptop, and essential accessories.

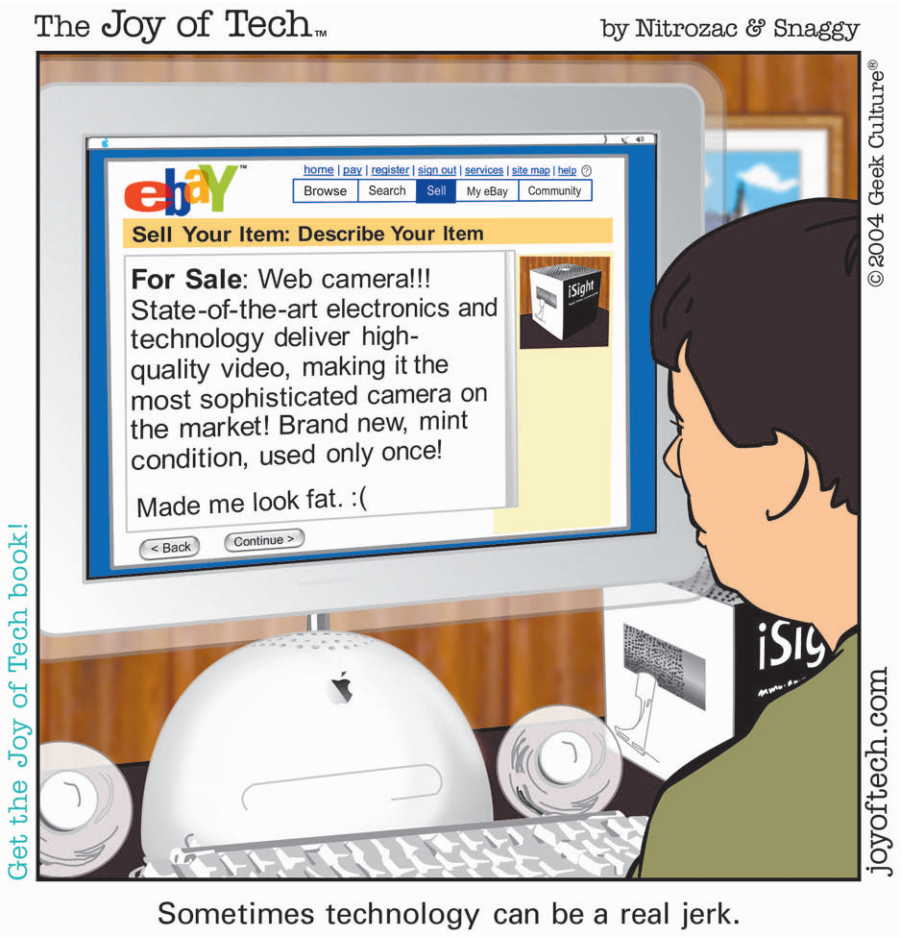
## Portable speakers

If you need a small pair of powered speakers, the £129 **Edirol MA10 DBK** compact active monitors should do the trick. They are magnetically shielded and provide 20 watts of RMS power using a tweeter and woofer in a bass-reflex enclosure with a quoted frequency response of 45Hz-35kHz. They can even be connected directly to digital audio sources via S/PDIF. One speaker has bass, treble and two independent volume controls on the front panel, with one mini-stereo jack socket for line input, and a pair of phono sockets providing a second line input. Both optical and coaxial S/P DIF sockets are provided on the rear panel for the 24bit/96kHz digital input, along with an output to the second speaker.

*Mike Collins is a music technology consultant and author of three books for Focal Press (**www.focalpress.com**): Pro Tools for Music Production; A Professional Guide to Audio Plug-ins & Virtual Instruments; and the just-published Choosing & Using Music & Audio Software.* **MW**

A geek's guide to looking great on iChat AV, in spite of your vicious iSight.

By Nitrozac and Snaggy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Made me look fat. :(
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iSight
Sometimes technology can be a real jerk.

# You sexy thing!

Let's face it folks – the days of hiding comfortably behind your avatar are over. With the advent of broadband Internet, cameras such as Apple's iSight, and iChat AV, that holy grail of science fiction, the videoconference, has arrived on your desktop. And if you're like us, one of the generations of geeks who grew up watching Star Trek, you can't wait to join the United Federation of Video-Enabled Planets.

So like any good video cadet would, you excitedly bought an iSight, set up your camera, downloaded iChat AV, and engaged the program! Then came the shock. Yikes!... do I really look like the Creature from the Black Lagoon?

Relax, and get some air into your gills because chances are good that you don't look quite as frightening as that – you probably just need to do a little tweaking here and there. You see, video chat is a whole different species, one that presents new challenges, especially to Internet veterans who have devoted their entire career training in the art of communication using alphanumeric characters.

Just about everyone looks great behind a cursor, but the days of communicating online exclusively with text are numbered. The Internet used to be a place where we could only read each other's words and your imagination would fill in the visual voids. Now, that's all changing. No longer can we sit in grubby geek glee, protected by our avatar shields, wearing only uniforms of underwear. Endangered are the days where we can pass digital transmissions and gas simultaneously, picking our noses with one hand and stuffing pizza down our throats with the other. Slowly but surely, video is changing that, and sooner or later, you're going to find yourself beamed up into someone's iChat AV window. At that instant you probably don't want to suddenly realize you're a going-to-die-before-the-end-of-the-episode redshirt.

So to help you through this difficult adjustment we're going to look at some of the things you can do to make your virtual self look as good as possible. Although we'll be focusing on the iSight and iChat AV, these techniques also apply to other Web cameras, video cameras and video-conferencing software. Some tips are simple, some will seem a little more radical. We aren't miracle workers, (Damn it, Snaggy – we're cartoonists, not plastic surgeons!) but we do think that you'll be able to use them as a guide on your AV mission: to explore video worlds; seek out new social life and AV situations; to boldly and beautifully geek where you have never geeked before!

## I'm a nerd, not a fashion model!

Right about now you may be saying to yourself "Wait a nanosecond, why should I care how I look online?" Well, if you're like most humans you probably want people to enjoy your company and you want to make a good impression, whether you're seeking love, taking part in an

ICHATAV SCREENSHOTS COURTESY OF JON MADDOX FROM WWW.JONSTHOUGHTSONEVERYTHING.COM

online interview, or just talking to your friend across the office.

Here's something to think about: if you're slumped in front of the camera looking rather unapologetically post-apocalyptic, then what you're saying to the person you are chatting with is "I don't care about you". Yes, believe it or not, not caring about your looks is a sign you don't care about the person on the other end of the connection, in real life or on computer screen. Now that's going to be a puzzling and perplexing concept to some of you, but it's true.

We aren't saying that you have to rewrite your entire personal source-code to please your civilization's aesthetic preferences – just suggesting that by tuning-up your hardware and tweaking your individual GUI, you can enhance the user experience. It doesn't hurt to look your best, and in situations where you're pursuing a potential partner it can lead to some insanely great things.

## Shape up your software

The iSight is an amazing camera but the not-so-flattering reality is that without some taming this sleek little Mac Eye can cast us in a poor light. We call that light the Blue Glow of Death, named after the pale bluish Goth-like effect the camera will give you in low-light conditions.

So, first things first: if you haven't already, install the iSight 1.0.2 Update. It offers significant improvements over 1.01, including improved auto exposure and auto white balance. Admittedly, the Blue Glow of Death hasn't been completely eliminated, but the update is still a huge improvement, especially under incandescent lighting.

For an example of the huge difference a little updated code can make, see right.

## Setting up the camera

**Getting into the missionary position** First off, let's mount the camera correctly. The most flattering position for your camera is straight in front of you – at eye level or slightly higher. This location makes your video conferencing look more natural, as if you were face to face with your AV partner. As a bonus this mounting position also reduces the dreaded Double Chin Amplification Effect that a camera sitting on your desk and pointing up at you can produce.

**Accessories are a geek's best friend** To help you position your camera Apple ships the iSight with three mounts, but let's be honest – these mounts are the Achilles' heel of an otherwise superb product. Nobody really wants to use adhesive tape to stick a mount to their monitor, nor do they want to fumble around with plastic clamps. Luckily third parties are stepping in to create some great solutions for the iSight's mounting shortcomings. Our personal favourite, and one we would recommend for anyone with an iSight, is MacMice's SightFlex (**www.macmice.com**; AM Micro, 01392 426 473).

The SightFlex puts your camera on the end of a flexible gooseneck, one which can be twisted and bent into pretty much any shape you'd like. No more clamps, lost plastic connectors, or any of the other frustrations associated with the standard mounts. It gives the camera a freedom of movement and positioning that lets you easily and quickly choose and adjust camera angles.

Once you have the camera where you want it there's a another way to make eye contact with your partner. Move your iChat AV window's position on your screen to the direction of camera. The closer they line up, the more it w appear that you are directly facing your iChat AV partner.

A second useful accessory you can add to an iSight is wide-angle lens. You'll find a wide angle is handy f including another person, displaying more of yo workspace or even an entire meeting room, or if you a using the camera for surveillance. A bonus effect of such lens is that it tends to make people look thinner. Rememb those Heart music videos with the horizontally compresse field of view? You won't look quite that uncomfortab squished, but it will help a bit.

When we use our iSight for interviews or virtual boo signings, we often use a Nikon wide-angle lens (WC-E2 so we can both fit nicely into the field of view. This lens w originally acquired for use with a CoolPix digital camer but with a quick hack it works superbly with the iSigh Using a small plastic bottle, a little tape, and a rubber band, Snaggy fashioned a handy lens holder, which easily slips on or off the iSight (see below).

Another option for adding a lens to the iSight is Kaidan's iSight Accessory Kit (**www.red-door.co.uk/system/index.html**). The kit includes a 37mm threaded lens adaptor ring (also available separately) that slips onto the iSight, letting you attach a standard 37mm lens or filters.

***SightFlex***
*This handy iSight accessory allows easy movement.*

***Pre 1.0.2 update (below left)***
*Jon Maddox as blue-skinned Andorian.*

***Post 1.02 (below right)***
*Jon Maddox looking amazingly human!*

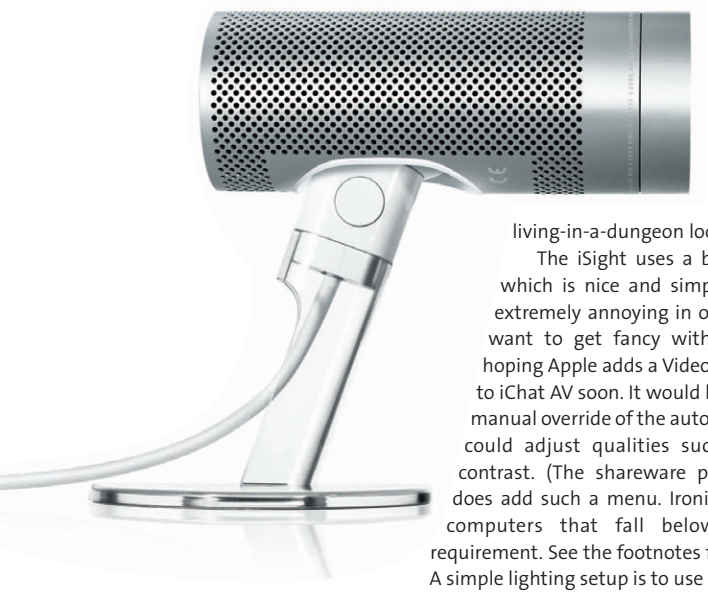
**Home-grown filters** If you've always dreamed of being a dreamboat, here's your chance to bask in a flattering romantic glow. Create a soft filter by stretching a piece of very fine gauze or stocking over the lens, or for those of you that are a little more kinky, there's that old standby, Vaseline. Fit some clear plastic wrap tightly over the lens with a rubber band, then apply a little dab of Vaseline. Wipe it a bit and behold – you'll find yourself in a soft and dreamy ethereal experience, as if you are the poster child for the Mills and Boon lifestyle.

**Remember:** first and foremost, you are a geek, and geeks were born to experiment! Don't be afraid to play with all kinds of homemade light benders – convex and concave lens, your grandmother's spectacles, beer bottles, shot glasses, bubble wrap, candy wrappers... all can be placed in front of your webcam. You never know what cool effect you'll come up with, or what warranty you can expire early.

## Setting the stage:

**Lighting** A few simple lighting techniques can make a huge difference on how you

continues page 84



appear on-camera. The iSight is incredibly successful at making the most out of a poor lighting situation, but that doesn't mean you have to settle for a living-in-a-dungeon look.

The iSight uses a built-in auto exposure, which is nice and simple in most cases, but extremely annoying in others, especially if you want to get fancy with your lighting. We're hoping Apple adds a Video Settings control panel to iChat AV soon. It would be wonderful to have a manual override of the automatic exposure, so you could adjust qualities such as brightness and contrast. (The shareware program iChatUSBCam does add such a menu. Ironically, it only works on computers that fall below Apple's minimum requirement. See the footnotes for more information.)

A simple lighting setup is to use a shaded incandescent lamp, off to one side of you, lighting your face at about 45 degrees. If you can, use a second light to fill in any harsh shadows. For an extra touch, put a low-level light behind your head, to give you some backlight magic. Experiment with different lamp positions until you find the lighting conditions that most flatter your features. It will help if you take Snapshots or screenshots, so you can compare your lighting options side by side.

**We know some of you don't want to look cleaner and younger, but for those interested in making an impact on certain significant others and increasing your likelihood of having sex, this is a big plus. Ask yourself this. If you were a woman, who would you rather be intimate with, Chewbacca or Han Solo? (Hmmm, perhaps don't answer that one.)**

Avoid lighting from below unless you want that classic flashlight-under-your-face zombie effect. (Good for Hallowe'en chats, though!) Also avoid harsh lighting from above, as strong shadows on your face will make you look older and exhausted. Aiming a bright spotlight directly at your face is also not recommended – save that for the Virtual Interrogation. If you're an Obsessive Reflective type personality use lamps of various brightness and try bouncing them off the walls and ceiling to achieve photonic perfection. All right, Mr DeMille, I'm ready for my close-up!

If you really want to push the illumination envelope, consider purchasing professional photography-lighting equipment. For less money than you'd think you can pick up a couple of basic light-stands that adjust the height and angle of the lights, giving you many options to play with. A bonus is that, when not lighting up your iLife, they make great reading lights. While you're at the photography store check out those coloured lighting gels or other freaky filters. Soon they'll be calling you Gaffer Genius!

**Desktops can make a difference** Much of the light your iSight captures, especially in low light conditions, is light radiating from your monitor and reflecting off your face. You can use this to your advantage by adjusting your desktop pattern. For instance, if you're using the default OS X desktop and noticing a bluish tone to your skin, try switching your desktop pattern to one of a warmer color, like a rose or tan.

**Watch your behind** The space that lies behind you is not a void, but is instead an empty canvas waiting to spruce up your AV existence. If, however, your background is filled with junk in plain iSight then that is probably going to reflect poorly on your geekosphere organizational skills. Tip: move your piles out of the camera's view, and create a cool stage for your virtual self to exist in.

If your back is against a wall, try hanging a framed print or two behind you. It instantly adds a bit of context to your video conferences. For instance, imagine how fun AVchatting will be if you pin up a large poster of the Enterprise's bridge behind you. Suddenly your AV partner is talking with the captain of the Starship Geekosphere!

If you have a bit of space to play with, how about putting a side table or bookshelf behind you with a nice-looking lamp, some of your favourite objects, and a plant on it. For some reason – perhaps because they don't have egos – plants and lamps are very photogenic and they add a warm, homey feel.

If you have those lighting stands and some coloured gels mentioned earlier, try a dramatic splash of light behind you, and change the colour when the mood strikes. Study television interviews to see what lighting tricks and techniques they use to flatter their guests. You see, you can learn something by watching Entertainment Tonight.

## Vanity, thy name is Geek

OK, now that you have your hardware and software tuned up it's time to take a second look at yourself. What can you do to help turn that dishevelled creature on the screen into an oh-so chic and sexy geek? The iSight is a silicon life form that tells it like it is, plus ten pounds. Unfortunately, you can't talk an iSight into feeling sorry for you, but you can adapt yourself in order to reflect the best possible lightwaves. Your goal here is to maximize your photogenic-ness, and here are a few tricks that will help.

**The skinny of it** Let's say you want to look thinner, but your iSight is Thinking Different. Here's some tips to virtually lose those pixels.

Good posture can make you instantly lose five pounds both in real life and on camera. Here's an exercise to practice. Pretend there's a string on the top of your head and someone is pulling it up, up, up. Now, tilt your chin out slightly and refrain from tucking your chin to your chest, this will improve your pose and reduce the appearance of a double chin. Glance at your image periodically and confirm that you're no slouch!

**Dress for success** The great thing about clothing is that it can be easily changed to emphasize our strong points and minimize our weak points. This is a complicated subject and we can only touch on it here, but here are a few general tips to get you started.

Darker colours will tend to make you look thinner. Black is the obvious standby, but dark blue and maroon are good choices, too. Avoid wearing loud patterns and bright stripes; they just look busy on camera.

**Wear clothes that fit** Don't wear shirts that are too tight. Too tight means your neck is spilling out of your collar, and the shirt and your midsection are making contact. There should be some space there, so if you're holding in your gut to make this happen, it's too tight. Be wary of clothes that are too big on you – they won't make you look smaller, just make you look buried in fabric. If your arms are heavy, avoid sleeveless shirts. And finally, wear a nice pair of trousers or clean jeans in case you stand up in front of the camera. We're assuming here that you do wear trousers while at the computer...

**Grooming v1.0** Being clean and well-dressed is essential to looking good on camera. The basics of being clean for guys, in case you don't already know, is your standard shower; soap, shampoo and conditioner followed by a shave, some form of hair styling, and an application of deodorant. Luckily no one can smell you online yet, but, while you're at getting dressed you may as well try to smell good (just in case the pizza-delivery person turns out to be a hottie).

**Hair today, gone tomorrow** Your hair is the biggest factor in determining your looks. If you've got that conquered, everything else is a breeze. Likewise, if hair is your least attractive point then it tends to drag down everything else with it. Admit it, your average geek doesn't

know much about hair styling – at best they've got the wash-&-wear thing going. If you're into looking your absolute best for the person you're talking to, try to style it. For guys this might mean actually using a comb, or if you're really adventurous and on the cutting edge, blow drying or gel.

Now, you may have fired up your webcam one day to suddenly realize you have more in common with an Ewok than a dashing Luke Skywalker. If so, you probably have what we call Linux Guru hair, although it's more correctly called Linux-Gnu Guru hair, and what this usually means is that there's also a scruffy and unruly beard attached.

We're not saying it's the end of the world if you look more like Richard Stallman than Linus Torvalds but to be honest, in an informal survey of some of the hottest geek chicks around, we've discovered a preference we call the G5: Girls Grok Groomed Geek Guys.

If you think you might fall into the Yeti or Sasquatch category, here's what you must do. Have a professional cut your hair, and try on that rare and elusive Clean Shave. We kid you not. Cutting off your long scruffy hair and shaving your beard (or at least trimming it), will instantly make you look cleaner and younger. Now we know a percentage of you don't want to look cleaner and younger, but for the rest of you – those interested in making an impact on certain significant others and increasing your likelihood of having sex – this is a big plus. Unconvinced? Ask yourself this. If you were a woman, who would you rather be intimate with, Chewbacca or Han Solo? (Hmmm, perhaps don't answer that one.)

This is why many makeover TV shows pick men with long hair and beards as test subjects. Giving them a good haircut and removing or trimming their facial hair makes a huge impact on how they look in real life and on camera. And it will for you, trust us.

## Beauty is epidermis-deep

Now let's talk about your skin. The recent iSight update does wonders for the Blue Glow of Death, and the camera now transmits a relatively normal skin tone in most situations, however, even with the firmware update, it tends to bring out splotches, blemishes, and dark circles under the eyes.

For an instant freshening try splashing some cool water on your face, then pat dry with a towel. To get rid of puffy eyes, place a chilled tea bag on each eye, and relax for a few minutes. Don't balk fellas, this stuff works! If you have to, think of the science involved – the coolness reduces puffiness and the tannin in the tea shrinks blood vessels. See, this stuff is pretty geeky!

To go that extra mile for your love-life or that AV job interview, we would suggest some extra primping. An application of cosmetics helps to smooth your skin tone, make you look rested, refreshed and clean. (Don't cringe guys, just try to imagine this as Real Life Photoshop.) Apply a concealer that matches your skin tone under the eyes, on blemishes and lightly on skin splotches. Lightly pat your face with a powder to get rid of shine. A shiny face, (or if you're bald, a scalp with a blinding glare), looks sweaty on camera, an attribute you don't want to convey, unless perhaps you're the star of an iChat AV exercise program.

Apply a lip balm on your lips and you're camera-ready! It's a good idea for most guys to stop there. We wouldn't recommend eyeliner, mascara, or lipstick unless you're a Goth Geek and applying cosmetics is something you're already skilled at. Popping up on iChatAV looking like Jordan after an explosion in the Max Factor plant will make an impression, but probably not the one you were hoping for – especially if you're a guy.

## Miss Manners AV: the missing manual

**Video is changing the way we socialize online.** Since a picture is worth a thousand LOLs, and visual actions speak far louder than /me's, here are a few guidelines you may want to remember while under the iSight's watchful and unforgiving HAL-like gaze.

A good rule of thumb is to keep your hands off your face and head for the entire time you're AVchatting. This will eliminate unconscious behaviour such as picking your lips, rubbing your eyes, playing with your hair, and so on. These are all signals as to what's going on in your mind and send silent but not so subtle messages such as "I'm exhausted", "I'm bored", "I'm getting agitated". You want to look relaxed, attentive, and interested in the other person and confident with yourself.

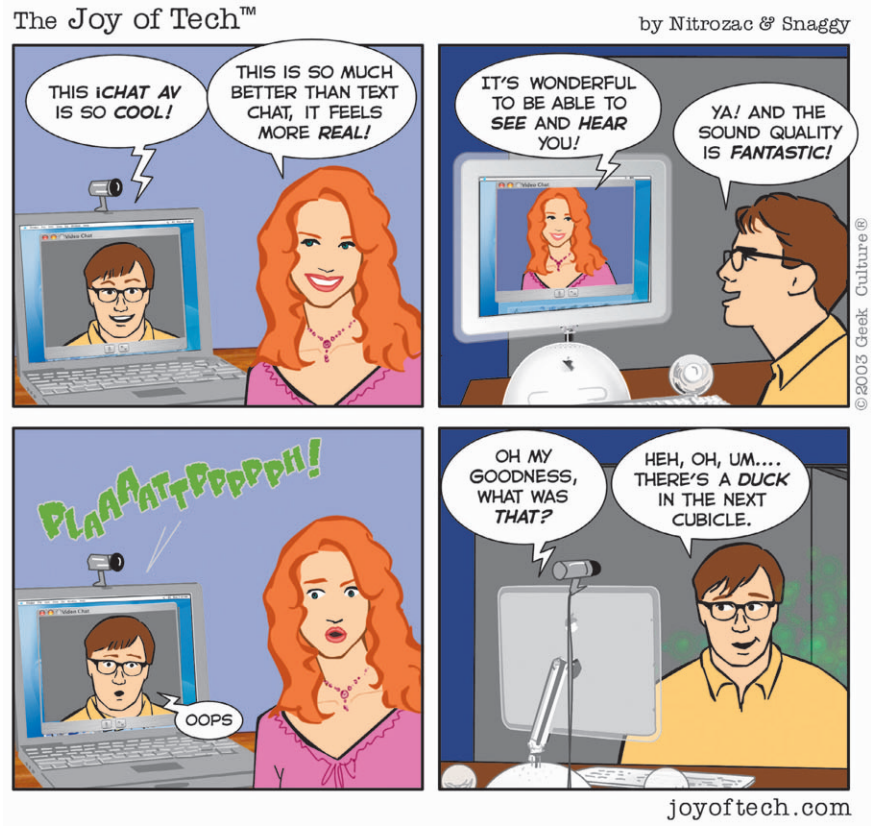
**Eating. Burping. Farting.** Needless to say, all three of these are an essential part of the human experience, but probably best left as forms of on-line expression to Tweens and school AV reunions. Drinking a cup of coffee or pop is fine, and some geeks may argue that they are essential props, just be mindful of spills and joke-induced spews.

Unless your virtual partner specifically asks for it, resist the urge to adjust your bra, pick your nose, or reach down to free-up some room in your briefs. They are what the mute button and the lens cover were invented for. Same goes for phone calls or arguments with your roommates – put your AV stream on pause when you're talking with someone else. It's just the polite thing to do.

## I've given her all I've got Captain!

Ok, now that we've got you completely self-conscious and anal-retentive, feel free to break these rules and get creative. This is a new communications tool at your command, go ahead and push it to Warp Factor 11. Have a romantic dinner for two while separated by thousands of miles. Do a movie night or watch your favourite TV shows together.

If your friend is blacked-out of a sports-match telecast, point the camera at your TV and share the action. Draw each other's portraits, sample wine and cheeses, read a story together, or hold a staring contest tournament. Think of something fun to do, and then adapt it to iChat AV. But most of all, have fun, as nothing is more flattering than a smile. **:-)**


The Joy of Tech™
by Nitrozac & Snaggy
THIS iCHAT AV IS SO COOL!
THIS IS SO MUCH BETTER THAN TEXT CHAT, IT FEELS MORE REAL!
IT'S WONDERFUL TO BE ABLE TO SEE AND HEAR YOU!
YA! AND THE SOUND QUALITY IS FANTASTIC!
PLAAAATTPPPPPH!
OOPS
OH MY GOODNESS, WHAT WAS THAT?
HEH, OH, UM.... THERE'S A DUCK IN THE NEXT CUBICLE.
©2003 Geek Culture®
joyoftech.com

***Bum wrap***

*Remember, whatever you do or say can be recorded and may come back to haunt you, so unless you've always wanted to be the next Stars Wars Kid, keep those personal adjustments and bodily functions under wraps.*

### SightLight

**Manufacturer:** Griffin
www.griffintechnology.com
**Distributor:** AM Micro, 01392 426473
**Price:** £30
**Star Rating:** ★★★★/7.9

If your computer desk at home isn't well lit, Griffin Technology might have the answer with SightLight. An LED collar around the iSight, the light softly illuminates your face with an even glow.

There are three settings – on, off and auto – which adjust according to the ambient light. Unfortunately, the power cable arrangement works only with iSight stands that use the (losable) plastic collar Apple provides. But if that's what you're using, this light is a convenient way to look your best.

secrets
iPhoto

# Prints charming

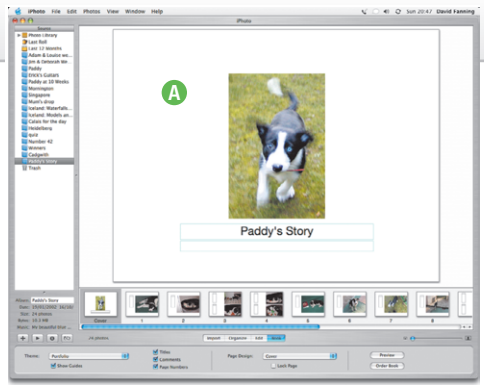
Finally – we in the UK can order prints from iPhoto. Here's how. By David Fanning

**Well, Apple has finally got its act together to allow online photo-printing and book-making from iPhoto in the UK. The US has had this capability for years, and now we can join in the fun. The new capabilities are powered by Kodak, and offer similar facilities to those available in the US. While there are other providers of online print ordering, nobody else offers beautiful canvas-bound books. Instead of getting prints made, only to stick them into your albums by hand, Apple lets you print one-off albums with the pictures already on the page. They make ideal wedding gifts, with discounts for orders of 30 or more. Equally popular will be books to commemorate or celebrate other special events. From now on, every birthday, bar mitzvah or boys' night-out attended by an iPhoto user is likely to end up as a book. Here's what to expect when you order your first iPhoto album.**

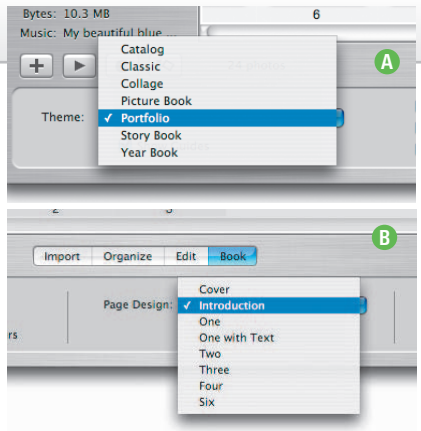
## 1 Organizing pictures

To order a book, the first step is to organize your pictures into an album. Create a new album in the usual way, then drag the images you want to use into that folder. Don't worry about messing up the albums already arranged – the pictures can be in multiple albums. Once there you can arrange the order in which to show the images. Just drag the pictures to the correct place and the following ones will shuffle down.

Once the pictures are in the right order, click the Book tab (A) at the bottom of the window.




## 2 Choose a theme

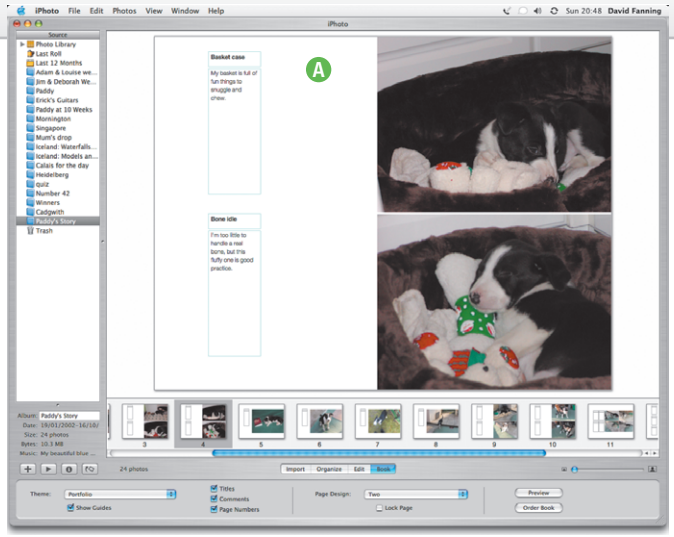



Don't click the Order Book button just yet. There are seven themes to choose from, either with or without text boxes to caption the pictures. For this example, I've chosen Portfolio (A).

Each theme has a number of page-designs available, and a cover. Depending on the theme chosen, iPhoto will arrange your pictures into a book, guessing at how many images to put on a page. At this point, it's up to you to organize the pages and captions. Turn to each page and chose the design, with up to eight images per page depending on the theme. Unfortunately, the theme is carried through the whole book, so you can't mix and match (B).

*continues page 88*

## 3 Arrange in book-form




It would be nice to be able to have a storybook, followed by a catalogue page of all the images at the back, for example. However, Apple's bent for simplicity means that isn't likely to be an option.

Options for the books include captions, titles and page numbers. These options also carry throughout the book.

Once the pictures are in the right place, it's a simple matter of typing in the titles and captions (A). The font is set to each theme, and the amount of space available for text is limited so be prepared to keep your titles short and your captions concise.

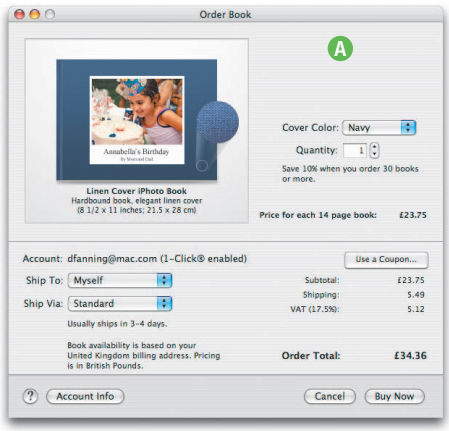
Once you are happy with how the book looks, hitting the Preview button (B) will bring up a virtual book so you can check spelling and give everything a last look.

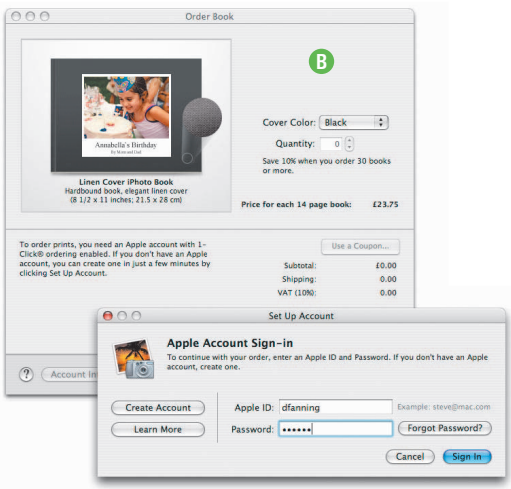
It would be great if you could print this, as proof-reading is best done off screen, but printing is disabled. If I had a suspicious mind, I may be uncharitable enough to say that Apple doesn't want you to print your own book because it wouldn't make any cash out of it. After all, home printers are quite capable of printing high-quality photographs. You may not be able to bind a hard cover on it, but it would be a simple and effective way to present your photo albums. It's a shame Apple is too stingy to give us this option, but I can see why.

## 4 The ordering process

Once the book is proofed, and you might want to get somebody else to look at it before you progress, you can then hit the Order Book button (A). If you already have a One-Click account set up then go right ahead and order – otherwise you will need to register. If you've ever bought anything from the Apple Store, you should already have an account. Make sure your credit-card details are up to date.

There are four colour choices for the cover, and there's a 10 per cent discount for ordering 30 or more books. At this point, you will also see the price, plus shipping and VAT. There doesn't appear to be any way to order pictures and books at the same time, so there aren't any savings on shipping to be had by sending a single package.


Order Book
A
Linen Cover iPhoto Book
Hardbound book, elegant linen cover
(8 1/2 x 11 inches; 21.5 x 28 cm)
Cover Color: Navy
Quantity: 1
Save 10% when you order 30 books or more.
Price for each 14 page book: £23.75
Account: dfanning@mac.com (1-Click® enabled)
Use a Coupon...
Ship To: Myself
Ship Via: Standard
Subtotal: £23.75
Shipping: 5.49
VAT (17.5%): 5.12
Usually ships in 3-4 days.
Book availability is based on your United Kingdom billing address. Pricing is in British Pounds.
Order Total: £34.36
Account Info
Cancel
Buy Now


Order Book
B
Linen Cover iPhoto Book
Hardbound book, elegant linen cover
(8 1/2 x 11 inches; 21.5 x 28 cm)
Cover Color: Black
Quantity: 0
Save 10% when you order 30 books or more.
Price for each 14 page book: £23.75
To order prints, you need an Apple account with 1-Click® ordering enabled. If you don't have an Apple account, you can create one in just a few minutes by clicking Set Up Account.
Use a Coupon...
Subtotal: £0.00
Shipping: 0.00
VAT (10%): 0.00
Set Up Account
Apple Account Sign-in
To continue with your order, enter an Apple ID and Password. If you don't have an Apple account, create one.
Create Account
Learn More
Apple ID: dfanning
Example: steve@mac.com
Password:
Forgot Password?
Cancel
Sign In

The pricing for books is £16.99 for the first 10 pages; if you don't fill the pages, then they come blank. Additional pages are £1.69 – the maximum you can have is 50 pages. My 14-page book cost £23.75, but add £5.49 for postage-&-packing and £5.12 for VAT, and in no time the total had tipped £34.36. A 50-page book would cost around £100 plus shipping.

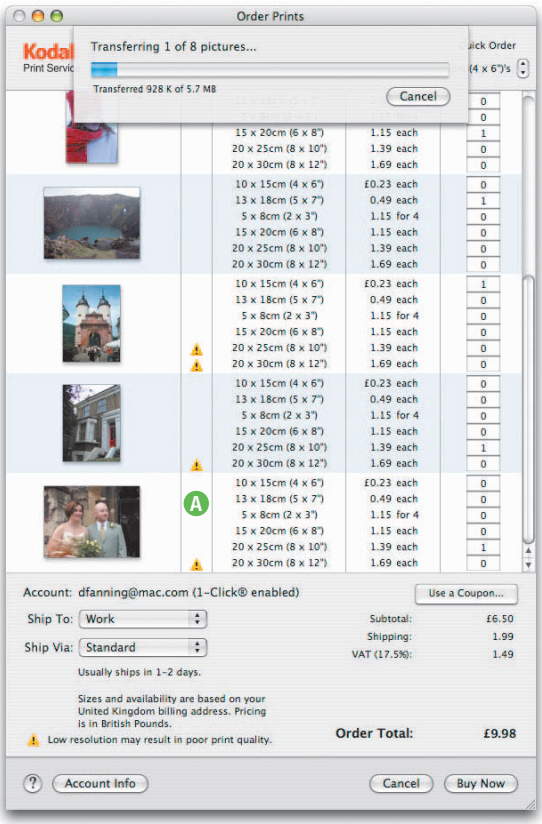
On one hand, £34.36 is a lot of money for a book. But bear in mind that this is a unique and entirely personalized book. You just wouldn't have been able to do this until very recently. If you look at this as just bound paper and linen, then it isn't such a good deal. If you look at it as a record of your memories, it's a great bargain. I think it could easily replace old-fashioned photo albums. As a gift, mums and grandparents will be welling up at the sight of their precious ones immortalized in book form. You just can't buy that kind of reaction, but £34.36 is a good start (B).

## 5 Ordering single prints

Printing single pictures is much more straightforward than making a book. Simply select an album and hit the order prints button. The order sheet will appear (you must register for a One-Click account if you haven't already) with prices and sizes. Choose the number of prints and at what size you would like and hit OK. Low-resolution images are flagged up and warn you that printing at larger sizes is likely to give poor results (A).

The individual price for each print is similar to what you might expect to pay on the high-street for traditional film prints, but it offers greater value and convenience. It's better value because you only print the images you want, and you can't get any more convenient than simply clicking the Order Prints button.

I wouldn't be surprised if this way of doing things starts to take some business away from inkjet-printer manufacturers. While home printing is far better than going to your local photo lab, it's still more work than hitting the Order Prints button. In addition, the price is easy to understand, while the price of printer ink is notoriously high and almost impossible to figure out in a price-per-print calculation. Online print services like this might force printer manufacturers to start dropping the price of their ink cartridges, which would be most welcome.




## 5 The results

After sending my images off at 10 o'clock on a Sunday evening, Apple went straight to work printing my pictures. A little over 24 hours later, I received an email to say that the prints and the book were on their way. Wednesday morning arrived and so did my prints from Holland. The three 8-x-10-inch prints came in a separate envelope, but the book took another day to arrive.

The prints are very glossy, just like a film photograph. In fact the results were much better than film pictures, not least because I chose to print only my very best images. That's the beauty of online digital ordering; you can be assured that every image comes out perfectly.

The cameras that I used to take the pictures ranged from two to four megapixels. Even when the two-megapixel images were blown up to 8-x-10 size, the quality was still excellent. If anything, the limitations of the camera showed before any limitation of the printing process.

Comparing the results of the Apple prints to the same images from a photo inkjet, the first major difference was convenience. It might seem strange that waiting three days for pictures to be delivered is more convenient that printing them out yourself, but I found it was. Printing pictures is certainly quick, but seems never to be without hitches. I'm forever printing on the wrong paper and getting the paper size wrong – not to mention running out of ink.

The alternative to that – simple point-&-click ordering – is so compelling that I may never again bother with photo printing at home. It even passes my long-time standard for usability: my Mum. She may not know much about digital photography, but I'm willing to bet that if she can get her pictures into iPhoto, then she'll certainly be able to get her head around the ordering process. After all, it looks very much like the order form for getting reprints in your local Boots.

While the prints from Apple are luscious, there are some drawbacks. For instance, the results are extremely glossy – but some people prefer matt prints. This isn't an option, and nor is printing with a white border. The prints are on Kodak DuraLife paper, which is exactly the same paper used if you sent your film to Kodak.

Having waited the extra day for the book to arrive, I was filled with anticipation. The results were every bit as impressive as the individual prints. It looks just like the kind of arty coffee-table book that you might see, but with your stuff in it – and it's printed on acid-free paper so it should last as long as any other book. I can't wait for somebody to have a wedding or some kind of event so I can give this as a gift. MW

# Creative Suite layers

Layered PDFs can be a boon for creating multi-lingual or detailed documents. By Sandee Cohen

What if they made a feature that no-one could use? When Adobe released Acrobat 6 Standard (£304 including VAT; **www.adobe.co.uk**) last May, the program could display layers in PDF files for the first time. But there were no Mac programs that could produce layered PDF files – only Microsoft's Visio and Autodesk's AutoCAD could, on the Windows side. Then came Adobe Illustrator CS (£511 including VAT) and InDesign CS (£715; or £927 together).

I'll explain how to create layered PDF documents in these programs, and how to put the new capability to work in projects such as a bilingual brochure and a multilevel map. Note that these techniques are for PDF files destined for on-screen environments – such as DVDs, kiosks, and ebooks – not those that will be used in print projects.

## Go straight to the source

You can't generate layers in Acrobat. Instead, you build them in a program that supports layers; then you export them as part of the PDF-creation process. Not all programs that have layers can export layered PDFs; for example, Photoshop CS can't. Also, Acrobat Distiller and other PDF-creation programs don't create layered PDFs; you can't produce layered PDFs from, for instance, QuarkXPress or Macromedia FreeHand.

## A bilingual brochure

Say you're using InDesign to construct two versions of a digitally distributed travel brochure: a French one and an English one. Without layered PDFs, you'd have to force some viewers to scroll past a page in one language to get to the other language. Now you can output a layered PDF that includes language buttons; your potential traveller simply clicks the appropriate button to choose a language.

**Create layers and buttons in InDesign** On the second page of your InDesign document, use the Layers palette to place the English text in one layer and the French text in another. On the opening page, use the Button tool to create buttons labelled "English" and "French." Select each button in turn and choose Object: Interactive: Button Options. Click the Behaviours tab and set the behaviour to Go To Next Page. Click Add and then OK.

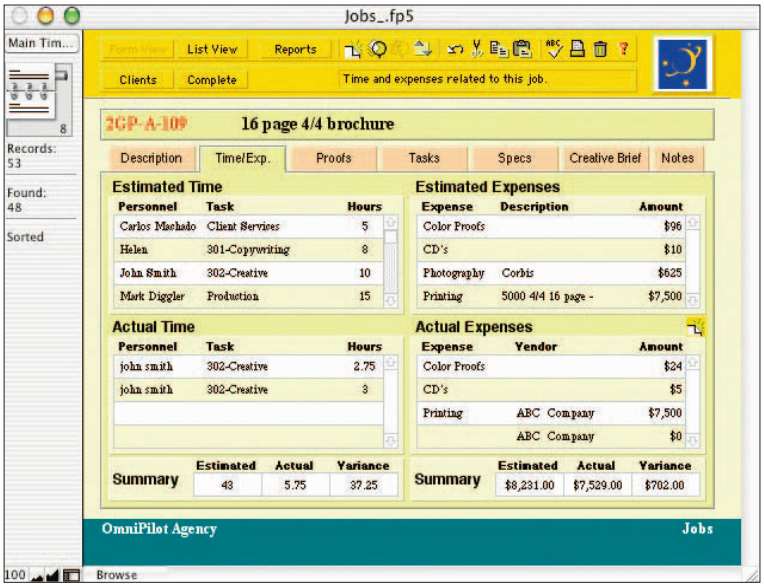
**Export to a layered PDF** To export the layers correctly, go to File: Export and choose Adobe PDF from the Format menu. Click Save, and set the Acrobat options in the resulting window. Choose Acrobat 6 (PDF 1.5) from the Compatibility drop-down menu, and select the Create Acrobat Layers option and the Interactive Elements option.

When you open the PDF in Acrobat 6 or Adobe Reader (free from **www.adobe.com/products/acrobat/readstep2.html**), the layers will be listed in the Acrobat Layers pane.

## Take off with Omnipilot

You know that everyone in your creative agency works hard, but you're never quite sure where their time goes. Or maybe team members aren't up to date on the progress of a joint project. Or perhaps you want to improve your billing efficiency. OmniPilot Software's agency-management program, OmniPilot Agency 4.1 ($489; **www.omnipilot.com**), may be able to help.

It has tools for everyone in an agency. The interactive online conference keeps clients in the communication loop. And happy clients mean a high-flying agency. **Terri Stone**



(Layered PDF documents also have an adorable little layer-cake icon in the lower left corner of the document window.) If you open a layered PDF in previous versions of Acrobat, Reader, or Preview, all the layers display and you can't change their visibility.

**Set layer visibility** You can't apply layer-visibility actions to buttons in InDesign. Instead, you'll have to turn to Acrobat's button controls. Activate them by going to Tools: Advanced Editing: Show Advance Editing Toolbar and clicking on the Button tool.

Open the brochure PDF, click the Layers tab, and turn the English layer on and the French layer off. Then go to the first page of the brochure. Double-click on the English button to open Button Properties. Under the Actions tab, use the Select Action menu to add the Set Layer Visibility action to the button. Click Close and repeat these steps for the French button, turning the English layer off and the French layer on. When someone clicks on one of the buttons, Acrobat displays the page with the appropriate language.

## A multilevel map

Layered PDFs are a blessing for projects with complex details. Consider a city map on the Web or on CD. When you zoom out to see the entire city, the view reduces street names and other small details to meaningless clutter. It would be better to see only larger details, such as highways. But when you zoom in on the map, small details are crucial.

**Create layers in Illustrator** Illustrator's Layers palette lets you place the thin lines indicating local streets on one layer, and the thicker lines for major highways on another (see "Map magnifications"). Beware – only the top-level layers translate into PDF layers, so don't use sublayers.

**Save as a PDF** To create the PDF from Illustrator, choose File: Save As and select Adobe PDF from the Format menu. When you click Save, you can set the Acrobat options. As in InDesign, choose the Acrobat 6 (PDF 1.5) compatibility option. Then choose the Create Acrobat Layers From Top-Level Layers option.

**Zoom in with bookmarks** Buttons aren't convenient for displaying map layers, because as you zoom in to a new area, you lose sight of the buttons that control the zoom. Change the layer display using bookmarks, which are always visible in Acrobat's Bookmarks pane.

In Acrobat, use the Layers panel to make the zoomed-out map visible and the other layers invisible. Set the zoom level with the magnification control. Click on the Bookmarks pane and the Create New Bookmark icon. Select the new bookmark, name it, and choose Properties from the Options menu.

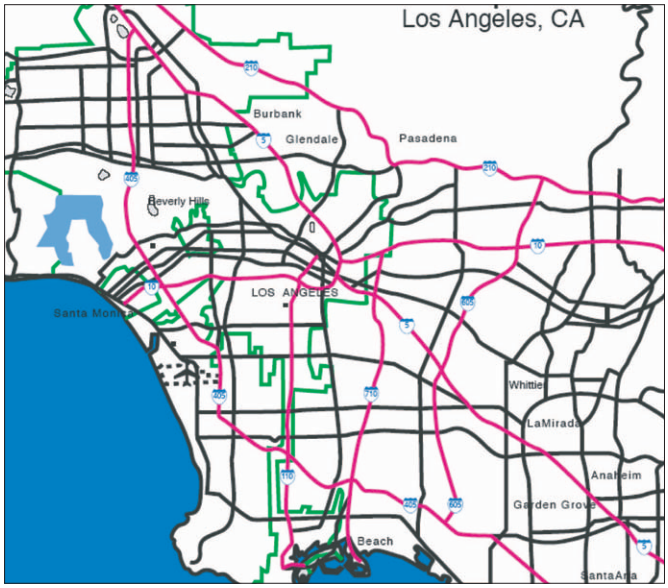
Under the Actions tab, go to the Select Action menu and add the Set Layer Visibility action to the bookmark. This creates a bookmark that sets the zoom level and changes the layer visibility. Repeat these steps for each detail level of your map.

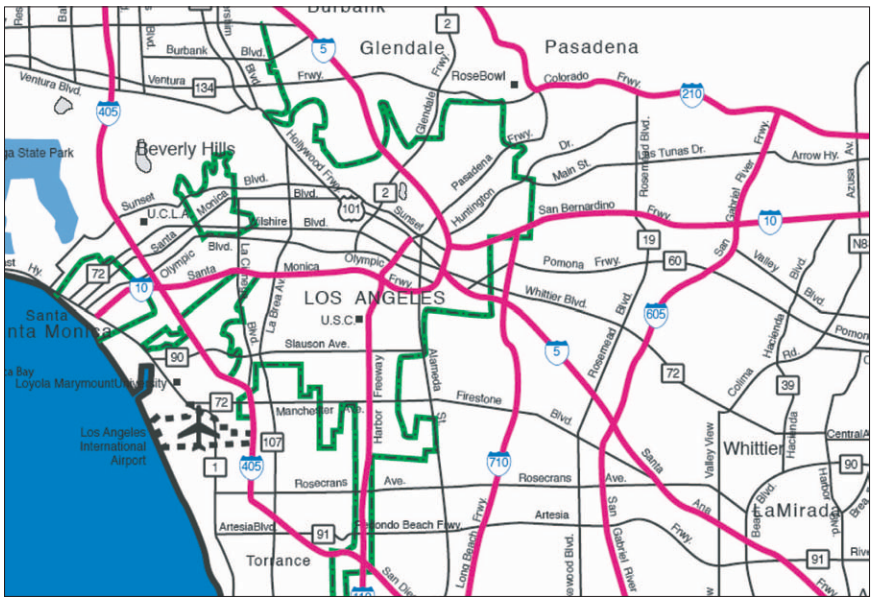
## Don't stop here

Layered PDFs have a place in many other projects. In a catalogue, try putting a product's different colours and styles on separate layers. Or employ layers for a schoool workbook, with test questions on a student layer and answers on a teacher layer. There's no limit to how you can use layered PDFs. **MW**

***Map magnifications***

*Layered PDF files are so new to Mac users that few of us know how to use them. In this project, I used Illustrator CS to layer maps of increasing complexity. One layer holds large details such as highways. Other layers hold smaller details that are helpful when you zoom in on the map. I assigned bookmarks to each layer in Acrobat 6.*



secrets

hands on

# Games Flash forward

Use the power of Flash to create your own computer games. By Russell Chun

Everybody likes to play games. Savvy Web-site designers capitalize on that enthusiasm with games that encourage visitors to stay longer and come back often.

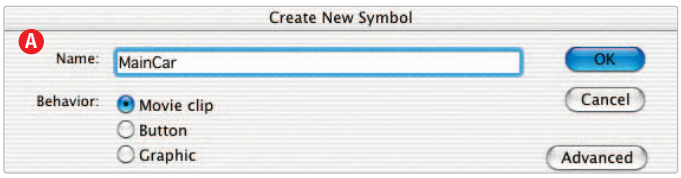
Some companies even turn fun into good business by creating and emailing games to clients in lieu of sending end-of-year thank-you gifts. You can join the gaming trend with Macromedia Flash MX 2004 (£419 excluding VAT; **www.macromedia.com/uk**).

In arcade games such as Asteroids, Frogger, and PacMan, the player moves a central character around the computer screen while dodging or intercepting objects in its path. If you're an experienced Flash user who's comfortable with the program's ActionScript, you can create a similar game.

## 1 Create your characters

**Begin by creating your game's characters. For this example, you'll create one car to represent the central character and other cars of a different colour to represent the obstacles.**

In a new Flash document, select Insert: New Symbol to open the Create New Symbol dialog box. Enter a name for the new symbol and choose Movie Clip as its Behavior (A).



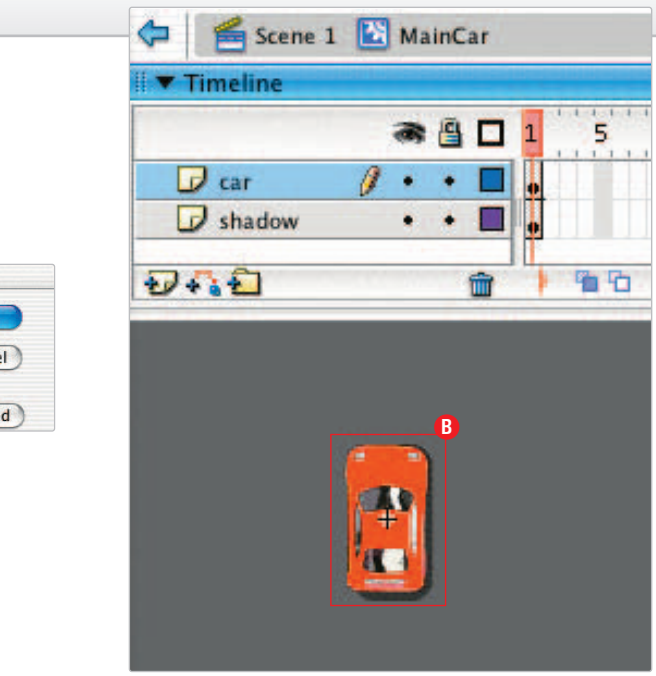

On the stage, draw a red car centred over the crosshair, which represents the registration point of your movie clip (B).

Return to the main timeline, and place an instance of your new movie-clip symbol by dragging it from the Library to the stage. In the Property Inspector, enter a name for the movie-clip instance. In this example, I've named the movie-clip instance me_mc (C).

Again, select Insert: New Symbol. Create another movie-clip symbol, this time a yellow car to represent the obstacles. On the main timeline, place three instances of this movie clip on the stage. Position the instances side by side above the central character (the first car, me_mc) (D).

In the Property Inspector, name the movie-clip instances obstacle0_mc, obstacle1_mc, and obstacle2_mc.

Later, you'll make the yellow cars roar down the stage, where the central character must dodge them.





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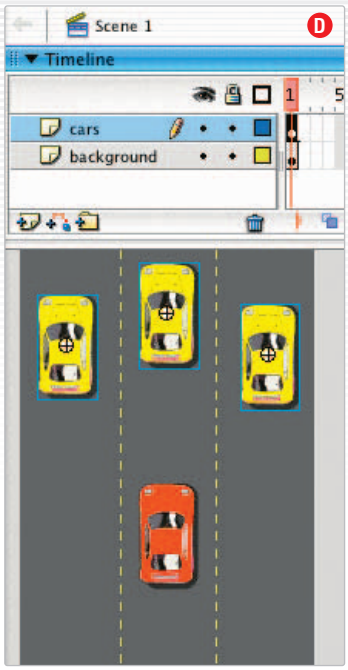
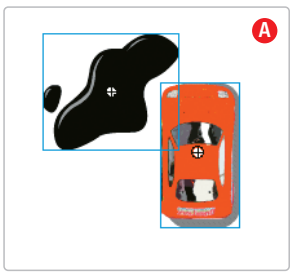



## 2 Understand collisions

**Before giving the cars motion and testing to find out whether the central character collides with the obstacles, you need to know how Flash handles collision detection.**

Collision detection relies on the ActionScript hitTest command. There are two ways to use hitTest: it can test whether one movie clip collides with another, or it can verify whether a specific point collides with a movie clip. Because in this game you want to know whether your central character collides with the other objects on the stage, you'll use hitTest to pit movie clip against movie clip.

Flash detects a collision when the bounding box of one movie clip intersects the bounding box of another. The bounding box is the minimum rectangular area that surrounds the shape of your movie clip – so Flash can detect a collision even when the actual shapes of movie clips don't touch.




For example, although this car does not actually touch this oil-slick obstacle, their bounding boxes intersect, so Flash would count this arrangement as a collision (A). You should keep this limitation in mind when you construct your game's characters.

Now it's time to open the Actions panel (Window: Development Panels: Actions) and enter code. Since the instance name of your central character's movie clip is me_mc, and the instance name of one of the obstacle movie clips is obstacle0_mc, your code looks like this:

```
me_mc.hitTest(obstacle0_mc)
```

If me_mc collides with obstacle0_mc, then hitTest returns a true value. So that you can respond to a collision, put hitTest inside an if statement:

```
if (me_mc.hitTest(obstacle_mc)){
        //collision happens, do something
}
```

To make your code easier to read and edit, assign this if statement to a function:

```
function testCollision () {
        if (me_mc.hitTest(obstacle_mc)){
        //collision happens, do something
        }
}
```

## 3 Put the obstacles in an array

**Detecting one collision doesn't make for a very exciting or challenging game. To detect collisions with multiple obstacles, such as the three yellow cars you've placed on the stage, you'll organize the obstacles into arrays.**

Arrays are containers that arrange many pieces of related information. Arrays hold data just as variables do, but they keep that data in a specific numbered sequence, called an index. The index begins at 0 and is numbered in ascending order so that each piece of data corresponds to a particular index number. The one-to-one correlation between index and data makes it easy to retrieve and modify information automatically. Putting multiple obstacles into an array allows you to perform the hitTest command on a single array instead of on many separate movie clips.

To associate a movie clip with a particular array, first create a new array object and then use the square brackets to reference each index:

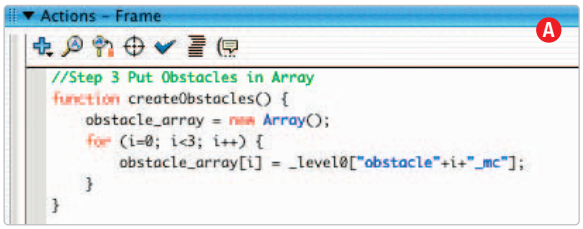
```
obstacle_array = new Array()
obstacle_array[0] = obstacle0_mc
obstacle_array[1] = obstacle1_mc
obstacle_array[2] = obstacle2_mc
```

The first line of code creates a new array called obstacle_array. In the remaining lines, the square brackets access a particular index in the array, and then assign a particular movie clip to that index. In this array, you put a reference to the movie clip obstacle0_mc in index 0, the movie clip obstacle1_mc in index 1, and the movie clip obstacle2_mc in index 2.

Using a loop can simplify this process. You can create an action or set of actions that automatically repeats (loops) a certain number of times, making repetitive tasks a cinch. In many cases, a variable such as a counter is used, which helps the loop keep track of how many times it must repeat.

The for command is a convenient and compact way to construct a loop. Three parameters control a loop made with the for command: Init, or the starting value of your counter variable; Condition, the expression Flash tests to determine whether to continue the loop; and Next, which determines the amount to add or subtract to the counter variable after each pass through the loop.

Select your game's first keyframe, open the Actions panel, and enter this code (A):




The first line after the green comment line creates a function called createObstacles. The second line creates a new array called obstacle_array. The third line sets up the loop to run three times: first when i=0, next when i=1, and a third time when i=2. When i=3, the condition is no longer met and Flash discontinues the loop.

The critical part of this code appears in the fourth line. The name of the movie clip put inside each index of the array changes according to the value of the variable, i. This is known as dynamic referencing. First, Flash resolves the expression within the square brackets on the right side of the equal sign (=). Then Flash looks within _level0 (the main timeline) to find that particular named movie clip, and puts it into the array. It may take a while to get comfortable with square brackets as a way to target movie clips, but it's a powerful approach that lets you target objects based on variables.

*continues page 94*

## 4 Test for collisions

**Now that you have three obstacle movie clips inside a single array, test for collisions with the central character. Again, you need a loop to test the objects in each of the index positions of the array.**

On the next new line of the Actions panel, enter this block of code (A):

First, create a new function called testCollision. Within this function, establish another for loop, which begins by initializing a counter variable to 0. In the first pass through the loop, Flash tests for a collision with the movie clip in index 0 of the array. In successive passes through the loop, Flash tests the movie clip in the next higher index.

The loop continues until it reaches obstacle_array.length. Every array has a length property. The length of an array is the number of elements inside it. So an array with its index 0, 1, and 2 positions filled has a length of 3. In our example, if you make the loop continue until it reaches the condition i<obstacle_array.length, you're assured that the loop will repeat until Flash checks all the movie clips inside the array.

Using the length property of your array gives the flexibility to manage multiple obstacles. For example, you may not yet know how many obstacles there will be, because you want to randomize the number to keep things interesting. Or you may increase the number of obstacles as the game progresses.

So within a single for loop, you can detect collisions for all three movie clips inside the array. Even if there are 20 obstacles instead of three, Flash automatically passes through the loop the necessary number of times and checks collisions for all 20. That's a lot of work for just a few lines of code!

A

```
//Step 4 Test for Collisions
function testCollision() {
    for (i=0; i<obstacle_array.length; i++) {
        if (me_mc.hitTest(obstacle_array[i])) {
            //collision occurs; do something
        }
    }
}
```

## 5 Create the motion of the characters

**Here's where the fun – and the bulk of the work – begins. You create the environment and the challenges that make your game an interesting experience.**

With the two functions that you've coded, createObstacles and testCollision, you now have a simple mechanism that detects collisions between your central character and the multiple obstacles. However, this is just the beginning – the character and the obstacles don't move yet, so you don't have much of a game.

Think about how you want your game to function. Do you want the central character to avoid the obstacles or to chase them? Do players move the central character with the keyboard or the mouse? How do the obstacles move, and what happens when they reach the edge of the stage? I can't explore all those questions here, so let's keep it simple. For now, just make the obstacle cars move straight down the stage at varying speeds and let the player control the central character's car with the mouse.

First, create the motion of the three obstacles. To make them move at different rates, generate random speeds for each of them by creating another array that stores their speeds.

On the next line of the Actions panel, enter the two functions createSpeeds and moveObstacles (A).

In the function called createSpeeds, each index position of the newly created array called speed_array holds a random number between five and ten. You can match the movie clip in obstacle_array[0] with its rate of travel in speed_array[0], match the clip obstacle_array[1] with speed_array[1], and so on.

In the function called moveObstacles, use the values in speed_array to move each obstacle. In the third line of this function, the _y property of each movie clip increases by its corresponding speed. An if statement starting on the fourth line of this function checks whether the _y property exceeds the height of the stage. If so, the function resets that particular obstacle's _y position to the top of the stage and then generates a new random speed and assigns it to that movie clip.

To make the central car follow the mouse pointer, use the startDrag command in the Actions panel (B). This one line of code will make the movie clip me_mc follow the mouse cursor at its registration point.

A

```
//Step 5 Create Motion
function createSpeeds() {
    speed_array = new Array();
    for (i=0; i<obstacle_array.length; i++) {
        speed_array[i] = 5+10*Math.random();
    }
}
function moveObstacles() {
    for (i=0; i<obstacle_array.length; i++) {
        obstacle_array[i]._y += speed_array[i];
        if (obstacle_array[i]._y>Stage.height) {
            obstacle_array[i]._y = 0;
            speed_array[i] = 5+10*Math.random();
        }
    }
}
me_mc.startDrag(true);
```

B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## 6 Invoke the functions and create the onEnterFrame handler

**To affect the speed of the obstacles and put them in the array, invoke the functions you defined when you began creating the game. For both collision detection and the movement of your obstacles, you'll create an onEnterFrame handler that's triggered continuously.**

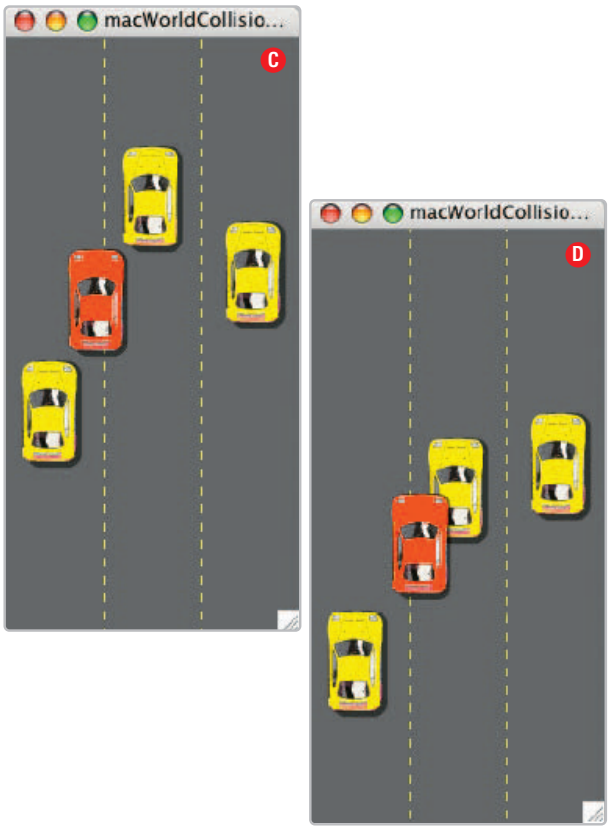
On a new line in the Actions panel, invoke the functions createObstacles and createSpeeds (A). This will establish the two arrays, speed_array and obstacle_array, which you'll use throughout the game.

On the next new line in the Actions panel, assign the functions moveObstacles and testCollision to the onEnterFrame handler (B). Flash triggers the onEnterFrame handler at the frame rate of your Flash movie, making onEnterFrame an ideal handler to invoke the moveObstacles and testCollision functions repeatedly. If you set the frame rate of the Flash movie to 12 frames per second, then the code invokes both functions 12 times a second (even when the play head on the Flash timeline is stopped).

When you test the movie (Control: Test Movie), the three yellow obstacle cars move down the stage with varying speeds, occasionally creating gaps between the lanes, through which players can navigate the red car (C).

If they're too slow or just plain unlucky, the red car might bump one of the obstacle cars (D), in which case Flash will detect the collision with that particular obstacle.

```
//Step 6 Invoke the Functions and Create the onEnterFrame Handler
createObstacles();
createSpeeds();
_level0.onEnterFrame = function() {
    moveObstacles();
    testCollision();
};
```




## 5 Elaborate on the game

**You can add much more complexity to this basic game.**

For a good game, you'll want to add a response to the central character's collision with obstacles. For example, if the player hits a yellow car, you may want to play an animation of a car crash, delete that yellow car, and keep track of the player's remaining lives. To do this, add a simple response, such as making the obstacle invisible, so you can test this collision-detection mechanism. In the Actions panel, add a line of code in place of the comment line (collision occurs; do something) in step 4:

```
obstacle_array[i]._visible = false;
```

Good games also become more challenging as they progress. Perhaps you'll want to make the obstacles travel faster, or multiply, or change lanes randomly.

No matter how elaborate your game becomes, remember that the simple collision-detection mechanism drives the basic game play, and you can use it to create many more variations. It won't take you long to realize that Flash games can be just as fun to design as they are to play.

***About the author***

*Russell Chun is the author of Macromedia Flash MX 2004 Advanced for Windows and Macintosh: Visual QuickPro Guide (Peachpit Press, 2003). You can see his work at* ***www.russellchun.com****.*

## Pin Flash scripts

To prevent Flash from displaying or starting a different script as you select various items on the stage, you can pin a script. Pinning forces Flash to continue displaying the same script even if you select a different frame in the timeline or object on the stage. It lets you examine a variety of elements and situations without losing your place in the script under construction.

To pin the script currently displayed in the Script pane, click the pushpin icon below the pane; the icon changes to a more upright version of a pushpin.

You can pin multiple scripts. To display a new script to pin, select an item in the Script Navigator. Double-clicking the item pins its script. Flash adds tabs for pinned scripts to the area below the script pane.

The item currently selected on the stage or in the timeline always appears in the leftmost tab below the Script pane. The tab for a pinned script currently on display is highlighted in blue; tabs for other pinned scripts are grey. Click a grey tab to select that script. To unpin a script, display it and then click on the upright-pushpin icon. MW

This is an excerpt from **Macromedia Flash MX 2004 for Windows and Macintosh: Visual QuickStart Guide**, by Katherine Ulrich (Peachpit Press, 2004).

# Supercharging iMovie

## Don't settle for iMovie's default effects – there are plenty of alternatives out there. By Jim Heid

Apple's iMovie 4 includes dozens of visual effects, scene transitions, and title formats. Used tastefully and sparingly, these extras add finesse to a movie and lend a professional touch. But some projects require something a little more creative than what iMovie's built-in tools can provide.

That's where iMovie plug-ins come in. Whether you want your footage to throb to the beat of its soundtrack or glow with psychedelic colours, these add-on packages let you work with footage in ways that are otherwise impossible.

All iMovie plug-ins appear directly within iMovie's Effects, Transitions, or Titles pane, so you'll never have to open up a second application to use them. In fact, using a plug-in is, in most cases, as easy as using one of iMovie's built-in effects.

### Bundles of joy

If you're looking for a quick way to expand and diversify iMovie's bag of tricks, look no further than the Slick family of plug-ins, from GeeThree. While most plug-in packages focus on one theme or task – such as adding colour-correction tools or motion effects – each volume of Slick Transitions & Effects is packed with a versatile assortment of top-notch plug-ins.

To get the most bang for your buck, try Slick Transitions & Effects Volume 5 (★★★★★/9.4; **www.geethree.com**). It includes more than 100 effects, transitions, and titles, for $50 – that's roughly 30p per plug-in.

The package excels at providing high-octane alternatives to iMovie's relatively pedestrian transitions. For example, Flash Dissolve brightens the outgoing clip until it's completely washed out, and then burns the incoming clip into the white frame. And Volume 5 includes several classic transitions missing from iMovie's repertoire, including a Wipe transition – in which a vertical or horizontal line sweeps across the screen, replacing one clip with another.

Volume 5 also includes a series of audio effects that make a video clip bulge or change brightness in rhythm with a soundtrack – perfect for garage-band (and GarageBand) music videos. You can even use a Film Ratings effect to make your own movie-preview ratings titles (see "Faux preview").

Of course, if you're just looking to add a specific effect or transition to iMovie, you can probably find a less-expensive alternative to Volume 5. But if you're looking for a well-rounded set of plug-ins that can be applied to a variety of moviemaking endeavours, Volume 5 is hard to beat.

You don't get the same abundance with GeeThree's $70 Slick Transitions & Effects Volume 6 (★★★★/8.5), but this collection of seven plug-ins tackles some ambitious iMovie tasks. The Color Correction effect, for example, adjusts colour balance and brightness with far more control than iMovie's Adjust Colors effect. It provides controls for adjusting shadows, midtones, and highlights, as well as black and white points. There's even a Broadcast Safe option – when activated, it ensures that colours will be within an acceptable range for television. On the downside, there's no way to easily apply the same settings to multiple clips.

*continues page 98*

THE FOLLOWING PREVIEW HAS BEEN APPROVED FOR
MACWORLD AUDIENCES
BY THE MACWORLD MOTION PICTURE ASSOCIATION
THE FILM ADVERTISED HAS BEEN RATED
MW MACWORLD AUDIENCES ONLY
SOME MATERIAL MAY NOT BE SUITABLE FOR WINDOWS USERS

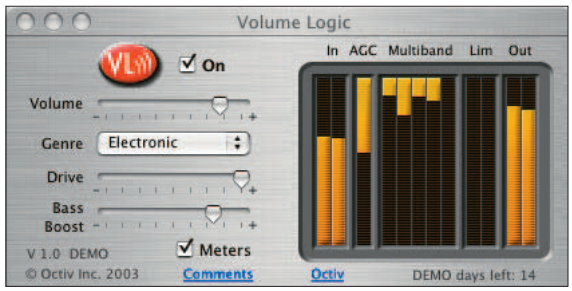
***Faux preview***
*Add a fun touch to iMovie projects by creating a film-rating screen.*

***Finesse your footage***
*Stupendous Software's Levels & Balances plug-in collection gives advanced control over the colour and contrast of footage. It even displays a small histogram in the top right corner.*

# Pump up the volume: remastering an iTunes playlist

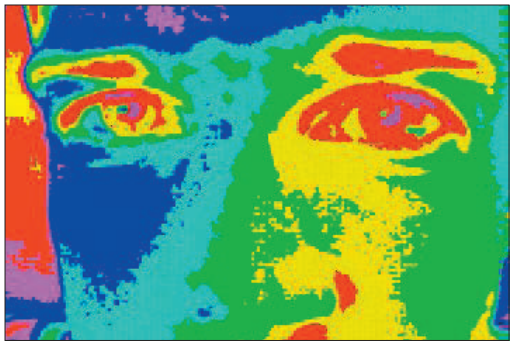
If you're disappointed by the tinny or muffled quality of your iTunes playback, Octiv has a solution that might just reignite your musical passions. Volume Logic is a $20 iTunes plug-in (★★★★/8.9; **www.octiv.com**) that digitally remasters music as it's playing, to dramatically improve sound quality and to even-out the volume between songs.

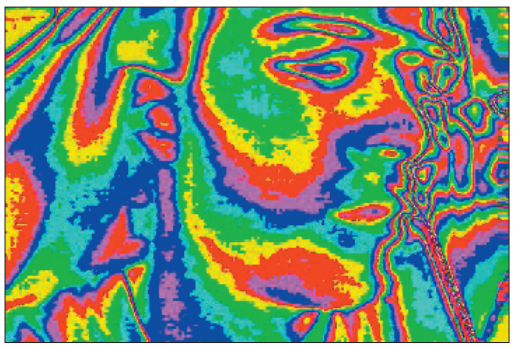
Based on the same audio-processing technique used by FM radio stations to add punch to their signals, Volume Logic includes a set of volume, bass, and treble knobs that adjust themselves thousands of times per second to balance and clarify tones (shown here). The plug-in offers 18 presets, each geared toward a specific music genre, as well as other controls to boost bass and adjust the amount of processing that Volume Logic performs.




The results are amazing. With Volume Logic turned on, a cheap set of computer speakers sounds better, and a good set of speakers sounds superb. Volume Logic not only excels at enhancing dance, electronic, and R&B tracks, but also adds sparkle and punch to subtler genres, such as jazz and classical. I wish only that Volume Logic's talents extended beyond iTunes playback: it has no effect on tracks that you burn to a CD or copy to an iPod.

You can download a 14-day trial version to hear the difference for yourself.





**"All iMovie plug-ins appear directly within iMovie's Effects, Transitions or Titles pane, so you'll never have to open up a second application to use them. In fact, using a plug-in is, in most cases, as easy as using one of iMovie's built-in effects."**

You can use Volume 6's Film Reel effect to add a single scrolling strip of images or movie clips to a frame, or use Video Wall to divide the entire frame into a grid of as many as 64 boxes – each filled with a separate movie or photo. If creating a training video, you may also appreciate the Overlay effects, which create on-screen boxes and highlights.

Because the effects in Volume 6 provide more settings than would fit within iMovie's standard Effects pane, each effect includes a Configure button that provides access to the additional controls. This can be a cumbersome way to work. If you frequently use these types of effects, you may be ready to graduate to Final Cut Express, which makes creating and previewing effects much faster.

## Plug-ins à la carte

If you don't need the variety offered by GeeThree's Slick series, and if you prefer to spend less money, several companies sell smaller plug-in collections that may better fit your budget.

**Transition plug-ins** If looking for a useful but economical transition collection, consider the $22 4in1 Transitions, from BKMS Software Development (★★★★/7.5; **www.bkms.com**). The star of 4in1 Transitions is a classic, well-executed wipe transition – a common request among iMovie users. When you're after something a bit more exciting, try the Melt Through transitions, in which one scene appears to melt into the next. There's also a Pixilate transition, which simulates the look of static by having the scene fade or dissolve in a shower of pixels. (You can also purchase these plug-ins individually for $8.)

**Title plug-ins** Although iMovie 4 packs a fairly impressive set of titling tools, there's always more room for text toys. Stupendous Software's $25 Big and Bold collection (★★★★/8.2; **www.stupendous-software.com**) offers a series of 40 sophisticated title styles – most of which would be difficult to produce in Final Cut Pro, never mind iMovie. For example, Banner Ghost centres title text on screen while a large but faint version of the same text glides across the screen. With Gather, multiple instances of the text converge from all sides to meet in the centre. The results are gorgeous. Another useful tool is Ticker, which lets you create your own CNN-style crawling text along the bottom of the screen.

**Effects plug-ins** If you're working with badly exposed footage or just want to create some cool effects, Stupendous Software's $25 Levels & Balances (★★★★/8.4) may be the answer. This plug-in collection offers 29 effects that bring Photoshop-like colour and level controls to iMovie. The Adjust Levels effect lets you adjust a clip's black points, white points, or gamma (brightness) settings to help salvage under- or overexposed footage, as well as add contrast and visual punch (see "Finesse your footage").

If you shot footage with an incorrect white-balance setting – which can add a yellowish tint to indoor scenes – use one of three White Balance effects to adjust the colour balance. There are also several effects that single out and tweak certain colours – to turn a yellow rose red, for example.

I found the effects in Levels & Balances easier to use than the Colour Correction effect in Slick Volume 6. You don't have to burrow into a separate dialog box to adjust settings, and each effect superimposes a histogram (a bar graph depicting the distribution of tonal values in a clip) over the image preview. On the down side, Levels & Balances doesn't provide a broadcast-safe option, so you'll need to be careful not to adjust a clip to the point where its colours won't display properly on a TV.

If you aren't looking for colour correction so much as colour distortion, check out the very groovy Rainbow plug-in, from Mouken LC (★★★★/8.1; $8; **www.mouken.com**). Rainbow performs only one trick – but it's an interesting one. It creates beautiful, high-contrast effects that resemble the results of the darkroom technique known as solarization. Used to the extreme, this can make footage look like a bad psychedelic video. Still, Rainbow may be just what you need for your next dream sequence or music video. **MW**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• G5 upgrade special • AppleWorks exporting • iPhoto ratings

# Mac Help

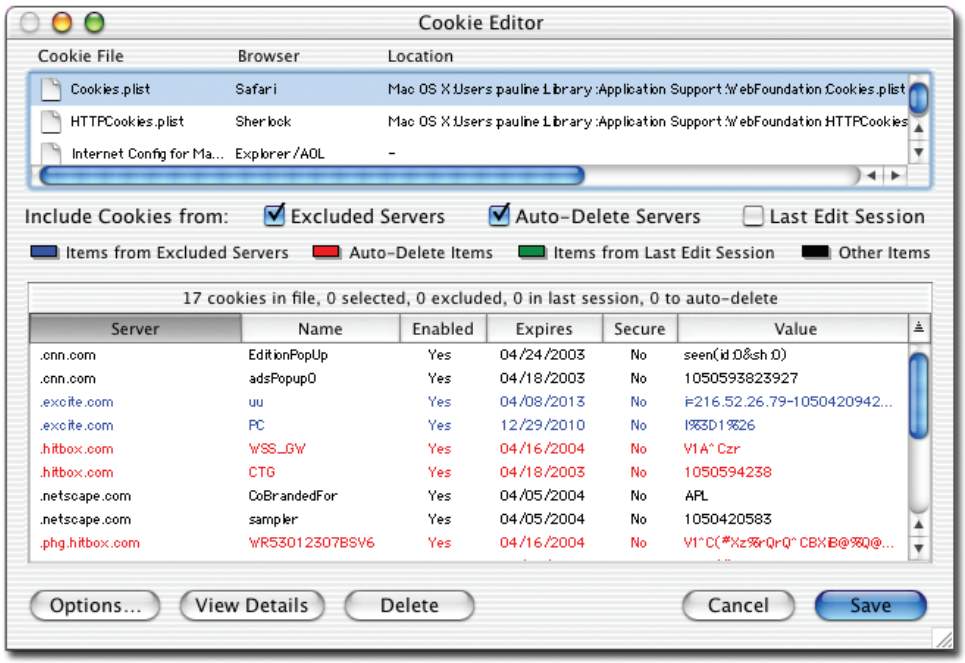
Handy tips and readers' questions answered. By Christopher Breen

## Will AppleWorks work?

**Q I volunteered to help our local nature centre catalogue its library. If I create a document in AppleWorks' spreadsheet program, can it be translated to Excel for use on PCs – without sending us all screaming into the hills behind the nature centre?**
Marti Hokans

A Probably. I waffle, because a successful translation from AppleWorks to Excel depends on the elements you include in the spreadsheet. With a straightforward table – one including headings, coloured text and cell backgrounds, a book title, an author name, and an ISBN number, for example – you should have no problem. Excel for both the Mac and Windows can read spreadsheets that include lists and standard formulas. To save the file in a format acceptable to Excel, select Save As from the File menu; then, in the Save: AppleWorks 6 dialog box, choose the appropriate Excel format (Excel Win 97, 2000, XP, or 2002, for example), and click on Save.

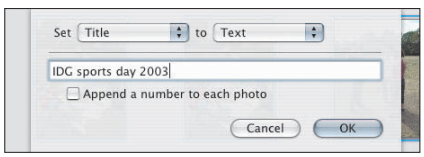
You'll run into trouble, though, if you place charts in the AppleWorks spreadsheet or slap an image of a black-crowned night heron into the file. The data should be readable, but any charts and graphics you've inserted won't appear in Excel.




## What's in a name?

**Q I've loads of images in my iPhoto library that I want to add a general title to – but I don't want to have to go through them all individually. What can I do?**
Jody Churchill

A Luckily for those of you with thousands of images, iPhoto 4 has a batch-change function. To invoke it, select all the images you wish to apply a global title to, then select Photos: Batch Change (or right-click on one of the selected images and choose Batch Change from the pop-up menu. It's possible to make global changes to the title, date, or comments for a group of images (below).




## 'Ware, oh, where?

**Q My ISP says that there are invisible files placed on my system by sites I visit, and that these files regularly send information about me back to those sites. The ISP used terms such as adware and spyware. What's really going on?**
Walt Hammonds

A If your ISP was more in tune with the Mac world, it would have prefaced its message with "For Windows-users only." Currently adware and spyware – which, respectively, are bits of code that display pop-up ads and send information from your computer to a third party without your permission – are all but unknown on the Mac.

There are applications that can log keystrokes and capture snapshots of what someone is doing on a Mac. Unlike much of the adware and spyware made for Windows, these applications aren't installed by a malevolent software download. Rather, they're placed on your Mac by someone who has access to your computer – a parent concerned about a child's Internet activities, a prying boss, or a jealous partner, for example.

Such tools are designed to be difficult to detect, so if you suspect that your activities are being monitored, you might take a look at Aladdin Software's Internet Cleanup (**www.aladdinsys.com**). Among its components is SpyAlert, a utility that searches your hard-drive for traces of applications known to track your activities. When it finds such traces, it alerts you to them and – with your permission – attempts to remove the offending software. When Aladdin learns of new spyware applications, it updates Internet Cleanup to deal with new threats.

*continues page 212*

# Mac Help special: upgrade a G5 hard-disk

Adding a second hard drive can dramatically increase a G5's performance. **By Ken Mingis**

When Apple unveiled its new lineup of G5 Power Macs last summer, the clear speed demon was the top-of-the-line dual 2GHz model. Hidden in its shadow were a 1.8GHz model and an entry-level 1.6GHz model – both of which sported a single processor, slower bus speeds and lesser video cards.

That equation changed in November, when Apple abruptly dropped the single 1.8GHz model and replaced it with one that had not one, but two 1.8GHz processors.

While Apple has said the company expects to have 3GHz G5 chips in its desktops later this year, nothing has been announced – though there is speculation that Apple will release updated models soon.

With that in mind, and with my older Power Mac G4 (the dual 1.25GHz model) sold, I took the plunge last month and picked up a dual-processor Power Mac. When it comes to computers, I'm a glutton for speed. But I like money, too, and that top-end Power Mac comes at a £400 premium over its slightly slower brother. For the money, you get about 10 per cent better performance, a slightly faster system-bus speed and an ATI 9600 Pro video card. (The midrange model has the NVidia GeForce FX 5200 Ultra video card, no slouch in its own right, although you can get the G5 with the ATI card for just £32 more.)

## Middle ground

My decision: Opt for the "Jan Brady" model – named after the middle sister on The Brady Bunch who never got the attention she felt she deserved – and use the savings to add memory and a super-fast 10,000rpm hard drive: a 74GB Western Digital Raptor.

Unless benchmarking the dual G5s for comparison sake, you're unlikely to notice any discernible difference in speed. But you'll likely notice that extra £400 in the bank if you buy the dual 1.8GHz G5 instead of the more expensive model.

Like its faster brother, the midrange model ships with 512MB of PC3200 RAM, enough to run the operating system and a couple of programs simultaneously. But you're almost certainly going to want to bump that memory to at least 1GB or 2GB as soon as you can. Doing so is a snap; just remember that unlike recent Power Macs, the G5s require that RAM chips be added in pairs. So if you want to add 1GB of RAM, you'll need two 512MB chips. If you want to add 2GB, you'll need two 1GB chips.

The two dual models come with eight RAM slots, two of which are already filled. Adding RAM, which is outlined in the owner's manual, is easy: Open the case, slide out a fan assembly, pop open the clips that hold the RAM in place, and firmly (and I do mean firmly) push the new chips into the slots. Apple recommends that you hold the outside case to brace it when inserting the chips. After that, slide the fan assembly back in, close the case and fire it up.

Curious to see how the new machine stacked up in terms of speed, I used the benchmarking program Xbench. When I first ran it, Xbench reported a speed rating of 178. I then changed the processor setting in the energy-saver system preference from "automatic" to "highest." The Xbench speed rating jumped to 189. If you're looking to get the most from your Power Mac, change that processor speed.

## Driving change

Both dual-processor models ship with a 160GB hard drive (a 7,200rpm Maxtor in my case). Although a 250GB drive is available as a built-to-order option, I wanted speed. I quickly settled on a 10,000rpm Serial Advanced Technology Attachment disk from Western Digital. That hard-drive has had good reviews online, especially the second-generation 74GB model, which offers twice the storage space of its predecessor and is apparently much quieter.

Installing a second drive in one of Apple's new Power Macs is one of the easiest under-the-hood operations I've done, and outside of adding RAM (or buying a faster model), it's one of the simpler ways to get a speed boost from your computer.

Adding a hard drive is a breeze. When you open the Power Mac's side panel, you can easily find the empty hard drive slot in the upper-rear portion of the computer. The stock drive is located in the top bay; the second one goes just below it (see "Bay watch", page 213). Just take the four extra screws used to hold the drive in place (the spare screws are attached to the drive bay and have larger-than-normal heads), attach them to the new drive, push it into place, slide a lever down to keep it there and connect the power and SATA cables.

Restart the computer, use Apple's disk utility application to format the drive and install your favourite Mac OS X operating system. I now have OS X 10.3.3 installed on the new and old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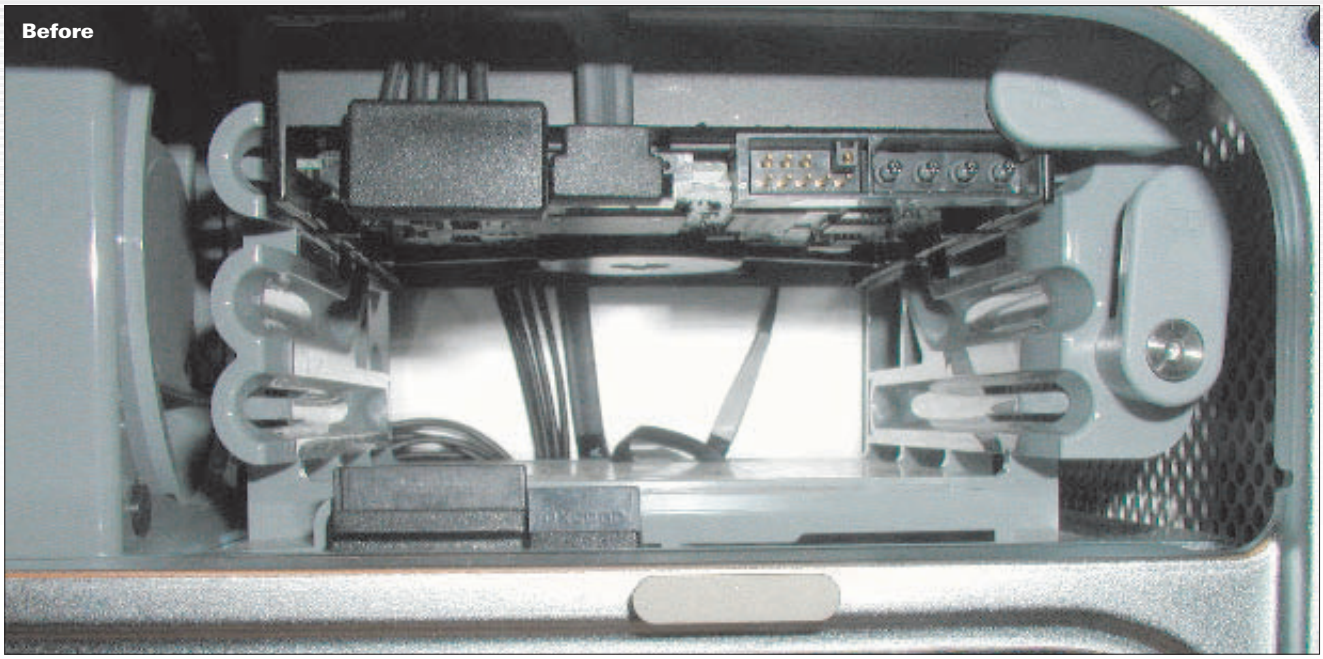



***Bay watch***
*The G5's pre-installed internal hard-drive sits in the top bay. To install another, simply screw it in underneath the existing unit, push it into place, close the levers, and then connect the cables.*

hard drives. For testing purposes, I looked at boot-up time, ran the Xbench benchmark application, checked the time needed to duplicate a folder with 51 items totaling 2.75GB of data, manipulated a 101MB TIFF image in Adobe Photoshop and added a transition to two film clips using iMovie. To quote the Mazda car commercial: Zoom, zoom!

Not surprisingly, the new hard drive booted up the G5 faster, taking just 34 seconds to get from start-up chime to desktop. The older drive took 41 seconds, which is still about 9 seconds faster than when I booted up into Mac OS X 10.3.2. (In both cases, auto log-in was turned on, with no start-up items to slow down the process.)

## Benchmarking

Next, I ran Xbench. The old drive consistently achieved a benchmark score of 189 or 190. The new drive got a score of 208, a 10 per cent boost. Of course, since the Raptor spins about one-third faster than the stock Maxtor drive, I was hoping for more. But 10 per cent isn't bad. In fact, when looking at the Xbench results in more detail, the difference in the drives is more apparent.

The disk test, which measures a series of cached and uncached reads and writes to the disk using data in 4K and 256K blocks, returned a score of 109 for the stock Maxtor hard drive. Using the new drive, that score soared to 152.

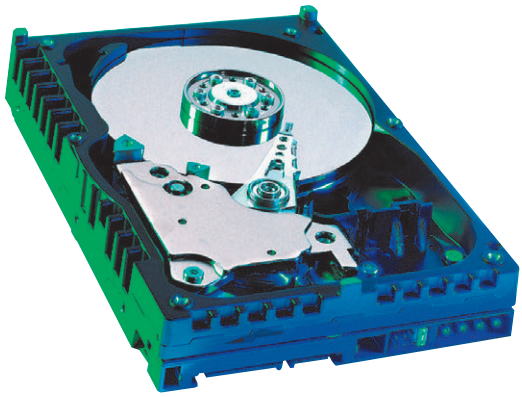
Then, another big "aha" moment. I duplicated that 2.75GB folder of data using the original Maxtor drive. Time needed: 3:58 seconds. Then I rebooted using the Raptor drive and did the same thing. Time to duplicate: just 2:09. The Raptor did the same job in just over half the time. Now, that's more like it.

Next, I took a 101MB Photoshop TIFF file and applied a 33 per cent radial spin blur at best quality. Both disks performed the operation in almost the same amount of time, a few seconds less than 4 minutes. Clearly, the drives didn't come into play here – except when launching Photoshop. Doing so took 24 seconds using the stock drive, but only 18 seconds with the faster Raptor.

The same thing happened when using iMovie: Adding a warp-out transition between two film clips took 10 seconds on each hard drive.

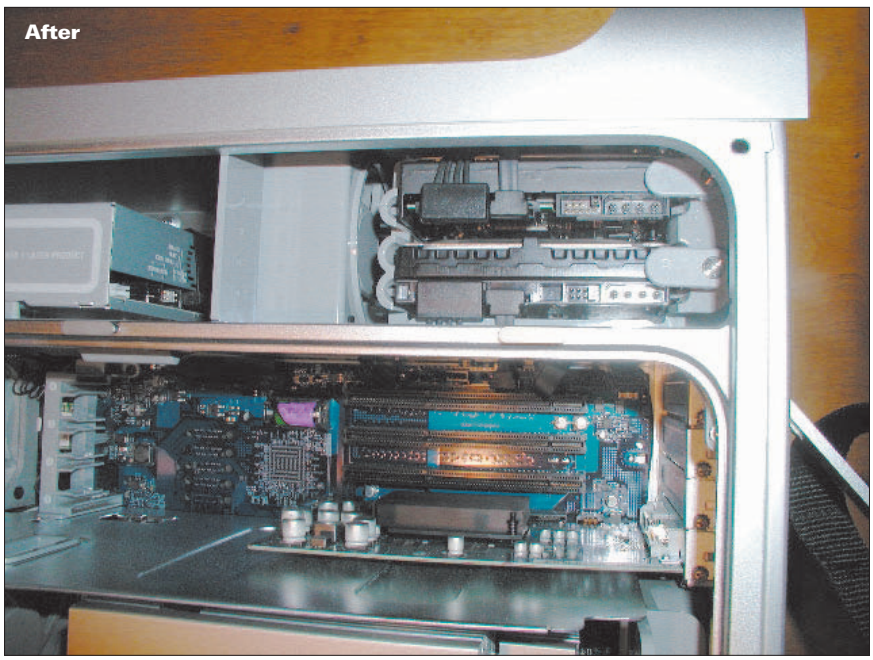
## The result

I'm pleased with the Raptor drive. I didn't expect every operation to be one-third faster, but I did expect – and saw – a noticeable difference in daily use. So far, I have found it to be quieter than the original hard drive (which sometimes sounds like a Geiger counter), and haven't noticed any increase in temperature inside the drive bay. There have been reports on Apple's forums of drive failures in some G5s, with owners pointing the finger at unusually high temperatures in the drive bay. The latest Mac OS X update made changes to how quickly the fans come on to keep the bay cooler.



***Slot machine***
*To find the cheapest prices of the Western Digital Raptor 74GB, 10,000rpm internal hard-drive visit* ***www.macquote.co.uk****. At press time, prices varied between £150 and £190 including VAT.*

*continues page 214*



# iPhoto tip of the month: Rating during slideshows

**TIP** iPhoto 4's slideshows are far more flexible than those created in previous versions of the program. You can not only elect to play an entire iTunes playlist behind a slide show, but also rate and rotate pictures as you view a slide show.

What's a little less obvious is that you can perform all these actions from the Mac's keyboard. For example, to rate pictures as they slide by, press 0 (zero) through 5 (0 for no stars, 5 for five stars). To rotate pictures clockwise, press ⌘-R. To rotate pictures counter-clockwise, press ⌘-Option-R. Press delete to remove a picture from the selected album. To change the speed of the slide show, use the up-arrow key to display pictures for a shorter amount of time and the down-arrow key to slow things down. To pause the slide show (but not the background music), press the spacebar.

***Faster photos***
*Rating iPhoto pictures is far more fun when done within a slide show.*

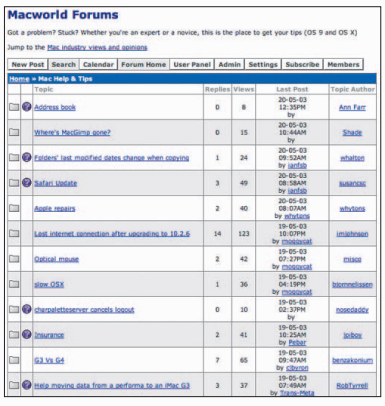
## GET QUICK ANSWERS HERE

Macworld contributing editor Christopher Breen answers readers' questions and selects reader-submitted tips for this column.

**Tips:** Send your tips (include your address and phone number, and mark Q&A in the subject line of the email) to **qanda@macworld.co.uk**. We pay £25 for each tip published here. We regret that we cannot make personal replies.

**Questions:** If you have a question, the fastest way to an answer is via Macworld's forums: go to **www.macworld.co.uk/forums**. The Mac Help & Tips Forum should be your first port of call. You need to register to use the forums, but it's free.

The forums are where Macworld editors and a host of Mac know-it-alls make it our business to put your Mac back in the pink. Before you post your cry for help, search the forum for similar queries. It's likely that if you're having problems, then someone else has already encountered and maybe even solved them.


Macworld Forums
Got a problem? Stuck? Whether you're an expert or a novice, this is the place to get your tips (OS 9 and OS X)
Jump to the Mac industry views and opinions
New Post | Search | Calendar | Forum Home | User Panel | Admin | Settings | Subscribe | Members
Home » Mac Help & Tips
Topic | Replies | Views | Last Post | Topic Author
Address book | 0 | 8 | 20-05-03 12:35PM by | Ann Farr
Where's MacGimp gone? | 0 | 15 | 20-05-03 10:44AM by | Shade
Folders' last modified dates change when copying | 1 | 24 | 20-05-03 09:52AM by ianfab | whatton
Safari Update | 3 | 49 | 20-05-03 08:58AM by ianfab | susanxsc
Apple repairs | 2 | 40 | 20-05-03 08:07AM by whytons | whytons
Lost internet connection after upgrading to 10.2.6 | 14 | 123 | 19-05-03 10:07PM by mopogcat | imjohnson
Optical mouse | 2 | 42 | 19-05-03 07:27PM by mopogcat | mlsgo
slow OSX | 1 | 36 | 19-05-03 04:19PM by mopogcat | bjornnellissen
charpelletserver cancels logout | 0 | 10 | 19-05-03 02:37PM by | nosedaddy
Insurance | 2 | 41 | 19-05-03 10:25AM by Peter | lolbox
G3 Vs G4 | 7 | 65 | 19-05-03 09:47AM by Cheryl | bensakonium
Help moving data from a performa to an iMac G3 | 3 | 37 | 19-05-03 07:49AM by Trans-Meta | RobTurrell

### With your permissions

**Q I've removed a user account in OS X 10.3, but many of the permissions are set to the account I deleted. How can I change all permissions from the old account to the new one?**
Darrell Keach

**A** There's a way to do this in Terminal, but I don't recommend going this route unless you and Unix are on very friendly terms (failing to enter the proper commands in Terminal can lead to disaster). Instead, I suggest Renaud Boisjoly's free BatChmod utility (**www.macchampion.com/arbysoft**) – which places a friendly face on the Unix chmod, chown, and chgrp commands.

To change those permissions, launch the program and drag an affected folder or file to the BatChmod window. The path to that item will appear in the File field. From the Owner and Group pop-up menus, select the entries that match your user account – darrell (if that's your user name) and Staff.

If you're changing the permissions of a folder and its contents, enable the Apply Ownership And Privileges option in the BatChmod window. Click Apply, and then click on Apply again in the resulting "Are you sure?" sheet. Enter your administrator password in the Authenticate window that appears, and click OK in that window to make the requested changes.

### One recipient, many addresses

**Q I have some people in my address book who have multiple email addresses. How can I pick a person's name once when typing it in the To section of Mail and have my email sent to all of his or her available addresses?**
Mike Drinks

**A** You can't do it by default, but here's a bodge. Create a group that includes multiple email addresses for one individual (above).

Let's say I wanted to generate a group that sends a message to your home, school, and work addresses. I'd create one contact that I might call Mike Drinks Home (with your home email address), another called Mike Drinks School (with your school email address), and another labelled Mike Drinks Work (with your work email address). I would then create a new Drinks Contacts group and drag the three Mike Drinks contacts I'd made into this group. When I wanted to send a message to all those addresses, I would use that Drinks Contacts group.

### Secret schedule

**Q A friend would like to publish her holiday itinerary as an iCal calendar, but she wants to restrict access to only her family members. How can she do this?**
Amy Miller

**A** Your friend can do this with her .Mac account, but I recommend that she do so only if she has a pathological trust in her family. To password-protect her calendar under .Mac, she must provide family members with her .Mac user name and password – the same user name and password she uses to purchase Mac goodies from the Apple Store. With that user name and password, others can log in to her .Mac account.

If this gaping security flaw doesn't bother your friend, she need only select an iCal calendar, choose Publish from the Calendar menu, select On A WebDAV Server from the Publish Calendar pop-up menu, and enter **http://idisk.mac.com/username/0Documents** (where username is her user name). Then she must enter her .Mac user name and password and click Publish for the calendar to be put in the iDisk Documents folder.

To share the calendar, she can pass along its address (which will take the form of **webcal://idisk.mac.com/username/Documents/calendar.ics**) and her user name and password.

Family members can access her calendar by choosing Subscribe from iCal's Calendar menu, entering the URL for the calendar, and placing her user name and password in the Authentication dialog box that appears.

I strongly advise your friend not to allow this kind of access to her .Mac account. She can use a far safer service such as iCal Exchange (**www.icalx.com**) or iCal World (**www.icalworld.com/hosting.html**), both of which allow you to publish password-protected iCal calendars for a small fee ($12 a year for iCal Exchange and $25 a year for iCal World). **MW**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# Macworld Buyers' Guide

Apple divides its Macs into consumer and professional, and desktop and portable. But just because you fancy an iMac, don't rule out a portable – you might be surprised how much a PowerBook or iBook suits you. And some users may require a "pro" machine even if they class themselves as a "consumer". Decide what it is you want to do, and follow our advice here.

## Desktop or portable

If you're often on the move, consider an iBook or PowerBook. You can easily hook each up to a larger monitor and separate mouse on a desk when you're back at base. They're easy to hide away, and with AirPort wireless networking, you can access the Internet up to 150-feet away from your telephone connection.

Apple's portables come loaded with every high-tech port needed, unlike most Windows laptops. The iBook is ultra-small, lightweight and, importantly for students, relatively impact-resistant – and even its 12-inch screen is still sizeable. The pro PowerBook G4 is super-thin and lightweight, and boasts screens from 12 to 17 inches. Its set of ports, including S-Video and Gigabit Ethernet, is impressive – as is its DVD-R SuperDrive.

## Performance

Gauging speed by **processor** megahertz ratings is the easy – but incorrect – way to judge performance. You must take into account the amount of memory, the size and speed of the hard disk, graphics card and video memory, and size of cache.

**The PowerPC G5 processor is a super-fast, next-generation 64-bit chip from IBM. If blistering performance at the bleeding edge is what you need, a Power Mac G5 is a must.**

**The PowerPC G4 processor from Motorola drives the Power Mac G4, PowerBook, iMac and eMac. It is specially optimized to speed-up selected programs via AltiVec technology.**

Apple now uses two PowerPC processors: the **G4** and **G5**. Both include AltiVec technology that makes specially optimized software run even faster. The full potential of the G5 will be realized when software – and especially the operating system – is optimized for its 64-bit architecture. Currently, nearly all software runs at the G4's 32-bit level. That said, the G5 is still faster – but not enough to disregard the speedy G4, which has plenty of life left in it yet.

Word-processing, spreadsheets, email and Web browsing don't require the very fastest processors, but digital photography, video, and graphics do.

The more memory (**RAM**) you have on your Mac, the faster your applications will run, and you'll be able to keep more programs open at the same time. We recommend you upgrade the memory to *at least* 512MB of RAM.

Fitting extra RAM to a Mac is easy, but get your reseller to fit it if you're nervous. Depending on which model you buy, an extra 256MB can cost as little as £35 online (try **www.crucial.com/uk**), and adding 512MB more will set you back about £100. RAM for portables often costs more.

**Cache** is a memory subsystem that stores frequently used RAM data for even faster processing access. It's necessary because most computers suffer from performance bottlenecks that slow data down as it travels around the system. The Power Mac G5 features super-fast interconnects, and so requires less cache – the data speeds around fast enough without it.

Most consumers won't get near filling their **hard disk** with their AppleWorks files, digital snaps and Web downloads. Video-editors and iTunes users, however, will require a larger disk. Get as many gigabytes as possible. You can't upgrade the hard drives in the iBook, PowerBook, iMac or eMac, but you can add inexpensive external FireWire disks.

A **video card** connects a Mac to its display. Serious gamers and creative professionals should aim for one of the ATI Radeon or NVidia GeForce4 cards found in Power Macs, with 64MB of video RAM onboard. You can't later upgrade the video card in any of the other systems – but this shouldn't matter for many users.

## Features

Apple differentiates its Mac models by type of optical drive: CD or DVD. All Macs come with at least a combination **DVD-ROM/CD-RW** drive that can read and writes CDs, and can play DVDs and DVD movies. The **DVD-R SuperDrive** does all that, and writes DVDs (DVD-R) of iMovies and digital snaps that play in domestic DVD players. The desktop Macs' SuperDrive writes to DVD at 4x-speed; the PowerBook's at 1x-speed.

All Macs come with top-of-the range connectivity features. Networking is at least 10/100BaseT **Ethernet**, with 1,000BaseT for Power Macs and the 15-inch and 17-inch PowerBooks.

All Macs offer at least two USB **ports** for peripherals, and at least one FireWire 400 (400Mbps) for digital video and peripherals. All now boast 480Mbps USB 2.0, except the eMac's older 12Mbps USB 1.1. USB 2.0 is compatible with USB 1.1 devices. The eMac's FireWire port makes the lack of USB 2.0 relatively meaningless. The 15-inch and 17-inch PowerBooks and Power Mac G5 include a FireWire 800 port (800Mbps).

All Macs ship with an internal 56Kbps modem. If you're frequently connected to the the Internet for long periods of time (especially in peak weekday times), you'll probably save call charges by upgrading to a faster **ADSL** broadband connection. You'll need to add an ADSL modem or router, and pay an ISP from around £23 a month for the faster access – but you pay no call charges no matter how long a Mac is connected, and you can use the phone at the same time. Unfortunately, not all areas are ADSL ready – check your phone number at: **www.bt.com/broadband**.

Apple's **AirPort** wireless-networking technology – based on either the IEEE 802.11b or 802.11g industry standards – lets you browse the Internet from anywhere in your home, up to 150 feet away from your phone line or Ethernet connection. AirPort uses radio waves, so it even works through walls. The latest Macs use **AirPort Extreme** (802.11g), boasting 54Mbps speeds, compared to the older AirPort's 11Mbps.

All Apple's new Macs come with the top-quality **iLife** suite of integrated digital-lifestyle software. **iMovie** is a simple but powerful digital-video editor

that works with FireWire. **iTunes** is music 'jukebox' software that can manage MP3 and AAC files, and burn audio CDs. **iPhoto** is a superb program that helps import, edit, organize and share digital photos. DVD-R SuperDrive models come with **iDVD**, which makes creating DVDs a doddle. Some Macs also ship with **AppleWorks** – a suite of easy-to-use business programs. The consumer Macs also ship with reference CDs and games.

Apple charges £69 per year for its online-based iTools, now called **.Mac.** You get an email address, 100MB of free Web space, simple Web-site templates, backup and virus protection.

Apple and its partners have made great efforts to ensure that Macs are largely **compatible with Windows PCs**. USB and FireWire help on connectivity. Emulation programs such as Virtual PC can run Windows software straight from a Mac.

Key applications, such as Microsoft Office, Adobe Photoshop and Macromedia Dreamweaver are all fully compatible with their Windows counterparts. You can swap Word, Excel and PowerPoint documents between the platforms.

## Education pricing

Apple offers special pricing for educational users. Institutions such as schools and colleges get the biggest discounts. Teachers and students get about a 9 per cent discount via the online Apple Store – click on Education. **MW**

*continues page 216*

## UPDATED 22/10/03

The main selling points of the **iBook** are its compact, lightweight, impact-resistant case and low price. Its processor has recently been upgraded to a G4, which makes it a very capable OS X machine.

The 256MB RAM is fine for OS X and a couple of programs, but performance will be boosted greatly by adding as much as you can. Via the Apple Store, the maximum 640MB of RAM will cost £120; via an online reseller, as little as £90.

The iBook ships with iMovie, iTunes and iPhoto, as well as the World Book encyclopedia and a couple of games. Word-processing, database, spreadsheet, presentations and graphics tools are provided by AppleWorks.

S-Video and composite video output require a £15 Apple Video Adaptor. Video mirroring to a projector or monitor is via the Apple VGA Display Adaptor.

**Pros:** Small enough to slip into a backpack, tough enough for schoolkids, the iBook is a more than capable and affordable consumer portable.

**Cons:** Requires more RAM. Ask for a larger hard-drive in the 12.1-inch model if you're an iTunes or iMovie user. The 14.1-inch model has a larger viewing area, but no more pixels and is half a kilo heavier.

All iBooks:
**Video card:** 32MB ATI Mobility Radeon 9200. **Resolution:** 1,024-x-768 pixels
**Memory:** 256MB (Max: 640MB)
**Cache:** 256K L2
**USB 2.0:** 2 **FireWire 400:** 1
**Ethernet:** 10/100BaseT **AirPort:** 54Mbps

■ Entry-level 12.1-inch TFT:
**Processor:** 800MHz G4
**Hard disk:** 30GB
**Optical:** DVD-ROM/CD-RW
**Weight:** 2.2kg **Price:** £849
**Star Rating:** ★★★★/8.4

■ Entry-level 14.1-inch TFT:
**Processor:** 933MHz G4
**Hard disk:** 40GB
**Optical:** DVD-ROM/CD-RW
**Weight:** 2.2kg **Price:** £999
**Star Rating:** ★★★★/8.4

■ High-end 14.1-inch TFT:
**Processor:** 1GHz G4
**Hard disk:** 60GB
**Optical:** DVD-ROM/CD-RW
**Weight:** 2.7kg **Price:** £1,199
**Star Rating:** ★★★★/7.8

## UPDATED 22/10/03

For the consumer/education market, the **eMac** offers a fast G4 processor, large CRT screen (with surprisingly small footprint), multiple optical-drive options, and superb pricing. It measures up well against the iMac. Its built-in 17-inch CRT display offers more screen-space at larger resolutions than the 15-inch LCD iMac. It costs a lot less than the top-end 17-inch iMac. Many will be swayed, however, by the iMac's LCD screen (think long and hard about screen size) and flexibility.

It's fast enough for consumer and educational tasks (Web, email, word-processing, accounts, digital photography, iTunes, etc), and capable of running even pro applications such as Adobe Photoshop.

Add more RAM; at least 512MB is recommended. Via the Apple Store, this will cost up to £120; online, it can be found for £60. A tilt-&-swivel stand for the eMac costs £49.

The eMac ships with the Apple programs (iMovie, iTunes, iPhoto; and iDVD on the SuperDrive model), as well as the World Book encyclopedia, and Deimos Rising game. Word-processing, spreadsheet, database, presentations and graphics tools are provided by AppleWorks.

**Pros:** Top features at attractive prices. Impressive screen resolution.

**Cons:** Requires more RAM. USB 1.1 rather than much faster USB 2.0, but FireWire makes up for this. Not as flexible as iMac. Limited internal expandability (extra RAM and AirPort Card only), although external alternatives are plentiful.

All eMacs:
**Processor:** 1GHz G4
**Screen:** 17-inch CRT (1,280-x-960 pixels)
**Video card:** 32MB ATI Radeon 7500
**Cache:** 256K L2
**USB 1.1:** 3 **FireWire 400:** 2 **PCI:** 0
**Ethernet:** 10/100BaseT **AirPort:** 54Mbps

■ Entry-level:
**Memory:** 128MB (Max: 1GB)
**Hard disk:** 40GB
**Optical:** DVD-ROM/CD-RW
**Price:** £649
**Star Rating:** ★★★★/8.8

■ High-end:
**Memory:** 256MB (Max: 1GB)
**Hard disk:** 80GB
**Optical:** DVD-R SuperDrive (4x)
**Price:** £849
**Star Rating:** ★★★★★/9.2

## UPDATED 08/09/03

The **iMac** boasts a "floating" flat-panel LCD screen that is held by a flexible chrome-pipe neck, allowing you to move it up and down and from side to side to gain a more comfortable viewing experience. LCD screens aren't just kinder to the neck, they're also easier on the eye than CRTs.

While the 15-inch LCD doesn't offer as large a viewing area as the eMac's, the widescreen 17- and 20-inch LCDs are particularly handy for multi-paletted pro applications. Inevitably, the LCD screens make the iMac more expensive than the CRT-based eMac – but offer compelling reasons for the extra outlay. The dome-like base also saves valuable desk space.

The iMacs ship with the great Apple programs (iMovie, iTunes, iPhoto; and iDVD on the SuperDrive model), encyclopedia, games, and AppleWorks.

**Pros:** Nothing beats the iMac on looks, and the adjustable LCD screen is a real improvement on the static CRT – although the eMac's maximum resolution is greater than the 15-inch G4 iMac's.

**Cons:** Like the eMac, the G4 iMac has limited internal expandability (extra RAM and AirPort Card only), although inexpensive external alternatives are plentiful.

All G4 iMacs: **Ethernet:** 10/100BaseT
**USB 2.0:** 3 **FireWire 400:** 2 **PCI:** 0
**Hard disk:** 80GB **AirPort:** 54Mbps
**RAM:** 256MB (Max: 1GB) **Cache:** 256K L2
**Apple Pro Speakers:** Included.

■ 15-inch:
**Processor:** 1GHz G4
**Optical:** DVD-ROM/CD-RW
**Screen:** 15-inch LCD (1,024-x-768 pixels)
**Video card:** 32MB NVidia GeForce4 MX
**Price:** £999
**Star Rating:** ★★★★/8.4

■ Widescreen 17-inch:
**Processor:** 1.25GHz G4
**Optical:** DVD-R SuperDrive (4x)
**Screen:** 17-inch LCD (1,440-x-900 pixels)
**Video card:** 64MB GeForce FX 5200 Ultra
**Price:** £1,449
**Star Rating:** ★★★★/8.6

■ Widescreen 20-inch:
**Processor:** 1.25GHz G4
**Optical:** DVD-R SuperDrive (4x)
**Screen:** 20-inch LCD (1,680-x-1,050 pixels)
**Video card:** 64MB GeForce FX 5200 Ultra
**Price:** £1,749
**Star Rating:** ★★★★/8.7

## UPDATED 08/10/03

Despite the arrival of the Power Mac G5, Apple is still selling the minitower **Power Mac G4**. Prices are reasonable, but you don't get the ultimate in performance.

Power users should seriously consider saving for the Power Mac G5, which is far more advanced and potentially a lot more powerful.

The stop-gap Power Mac G4 range offers older specs than those available previously. There's no FireWire 800, USB 2.0, or AirPort Extreme/Bluetooth built in.

But it does offer something that the G5 doesn't: the ability to boot in Mac OS 9. This may interest musicians and designers who are still waiting for OS X-compatible plug-ins. This is the only reason to consider the Power Mac G4 these days.

**Pros:** The entry-level model is an inexpensive pro-tower that offers OS 9 bootability – still important to some users. The dual-processor machines are well-priced for OS X-fearing power users.

**Cons:** Uses older specifications than previous G4s; superseded by G5.

All G4 Power Macs:
**USB 1.1:** 2 **PCI:** 4
**FireWire 400:** 2
**System Bus:** 167MHz
**Ethernet:** 10/100/1000BaseT
**AirPort:** 11Mbps

■ Entry-level:
**Processors:** 1 x 1.25GHz G4
**Memory:** 256MB DDR (Max: 2GB)
**Disk:** 80GB **Cache:** 1MB L3
**Optical:** DVD-ROM/CD-RW
**Video card:** 64MB ATI Radeon 9000 Pro
**Price:** £999
**Star Rating:** ★★★★/7.4

■ Mid-range:
**Processors:** 2 x 1.25GHz G4
**Memory:** 256MB DDR (Max: 2GB)
**Disk:** 80GB **Cache:** 2MB L3 per chip
**Optical:** DVD-ROM/CD-RW
**Video card:** 64MB ATI Radeon 9000 Pro
**Price:** £1,239
**Star Rating:** ★★★★/7.5

■ High-end:
**Processors:** 2 x 1.25GHz G4
**Memory:** 512MB DDR (Max: 2GB)
**Disk:** 80GB **Cache:** 2MB L3 per chip
**Optical:** DVD-R SuperDrive (4x)
**Video card:** 64MB ATI Radeon 9000 Pro
**Price:** £1,489
**Star Rating:** ★★★★/7.5

## POWERBOOKS UPDATED 16/09/03

Its lightweight case and speedy processor make the **PowerBook G4** a genuine alternative to the desktop Power Mac. There are two compact 12.1-inch screen models, two 15.2-inch widescreen, and one large 17-inch widescreen. All now feature the lightweight anodized-aluminium case.

G4 processor speeds start at 1GHz – easily fast enough for pro applications, and the video cards boast up to 64MB of video RAM. Each size has a slot-loading DVD-R SuperDrive model – although this runs slower than that in desktop models.

If you fancy the iBook for its compact size and light weight, but demand more power, the **12-inch** PowerBook is a great choice if you're frequently on the move. Digital video-out is via a mini-DVI port. Connect to an external Apple LCD display with a £75 DVI-to-ADC adaptor. It lacks fastest Gigabit Ethernet – although this won't bother many.

Mobile computers are all about compromise (size against performance and features), and the middle model will appeal to those who can take a little extra weight for the extra screen space. Now that the **15-inch** model is in the aluminium case, with AirPort Extreme and FireWire 800, it is the pick of the range.

The **17-inch** PowerBook boasts the largest laptop screen on earth, and will appeal to video or music pros, who regularly need to take their computers on the road. Size isn't really an issue when travelling, but frequent laptop luggers will be put off by its weight – although it's reasonable for such a large-screen laptop.

All models support dual-screen display using external monitors.
**Pros:** Lightweight, slim and stylish, there's a PowerBook G4 model for everyone: from compact to giant; USB 2.0 on all models; 1.25GHz 15-inch and 17-inch include backlit keyboard.
**Cons:** 12-inch has no FireWire 800; 17-inch shows its size by weight.

Both 12.1-inch PowerBooks:
**Processor:** 1GHz G4 **AirPort:** 54Mbps
**Memory:** 256MB (Max: 1.25GB)
**Cache:** 512K L2 **Hard disk:** 40GB
**Video card:** 32MB NVidia GeForceFX 5200
**Resolution:** 1,024-x-768 pixels
**USB 2:** 2 **FireWire 400:** 1 **Weight:** 2.1kg
**Ethernet:** 10/100BaseT **S-Video:** 1

■ DVD-ROM/CD-RW **Price:** £1,299
**Star Rating:** ★★★★/8.4

■ DVD-R SuperDrive (1x) **Price:** £1,449
**Star Rating:** ★★★★/8.6

Both 15.2-inch PowerBooks:
**Cache:** 512K L2 **Weight:** 2.49kg
**Resolution:** 1,280-x-854 **AirPort:** 54Mbps
**USB 2.0:** 2 **FireWire 400:** 1
**PC Card:** 1 **FireWire 800:** 1
**Ethernet:** 10/100/1000BaseT **S-Video:** 1
**Video card:** 64MB ATI Radeon 9600

■ DVD-ROM/CD-RW 15.2-inch:
**Processor:** 1GHz G4 **Hard disk:** 60GB
**Memory:** 256MB (Max: 2GB)
**Price:** £1,599 **Star Rating:** ★★★★★/9.0

■ DVD-R SuperDrive (1x) 15.2-inch:
**Processor:** 1.25GHz G4 **Hard disk:** 80GB
**Memory:** 512GB (Max: 2GB)
**Price:** £1,999
**Star Rating:** ★★★★★/9.0

■ DVD-R SuperDrive 17-inch:
**Processor:** 1.33GHz G4
**AirPort:** 54Mbps
**Memory:** 512MB (Max: 1GB) **PC Card:** 1
**Cache:** 512K L2 **Hard disk:** 80GB
**USB 2:** 2 **FireWire 400:** 1 **FireWire 800:** 1
**Ethernet:** 10/100/1000BaseT **S-Video:** 1
**Video card:** 64MB ATI Radeon 9600
**Resolution:** 1,440-x-900 pixels
**Optical:** DVD-R SuperDrive (1x)
**Weight:** 3.08kg
**Price:** £2,399
**Star Rating:** ★★★★★/9.0

## UPDATED 18/11/03

The **Power Mac G5** is the spearhead of Apple's attack on the PC workstation market – packed with next-generation technologies, and running IBM's extremely powerful 64-bit G5 processor.

Its phenomenal power isn't just down to the processor. Performance bottlenecks are eliminated by an industry-best frontside bus running at up to 1GHz, and HyperTransport interconnects.

Hard drives are Serial ATA, supporting 1.5Gbps throughput per channel.

All this speed generates a lot of heat, and Apple has created a smart cooling system with up to nine fans and four thermal zones. As fans can slow down depending on the operation in progress, sound levels are reduced, making the Power Mac G5 much quieter than the G4. The addition of USB 2.0 ports means that the Power Mac G5 can support many peripherals previously pegged back at slower USB 1.1 speeds.

The top Power Macs feature two G5 chips – making it the perfect machine for multiprocessor-optimized applications such as Adobe Photoshop and Final Cut.

The ability to add up to 8GB of super-fast DDR RAM is another plus for OS X users – particularly for creative professionals.

As a pro system, it ships with Gigabit Ethernet for faster networking – although you'll have to upgrade your LAN's switches to get all the benefits.

The case is well designed for easy access and quick upgradability. It's even easier to fit RAM and drives than in the Power Mac G4 – you don't need any tools; everything slides and clicks into place with ease.

The Power Mac ships with the Apple iLife programs (iMovie, iTunes, iPhoto; and iDVD).
**Pros:** Super-fast; next-generation technologies; up to 8GB RAM; DVD-R SuperDrive; digital audio; quiet.
**Cons:** No good if you want to boot in Mac OS 9, but Classic works fine.

All G5 Power Macs: **USB 2.0:** 2 **FireWire 400:** 2 **FireWire 800:** 1 **AGP 8X Pro:** 1
**Ethernet:** 10/100/1000BaseT **AirPort:** 54Mbps

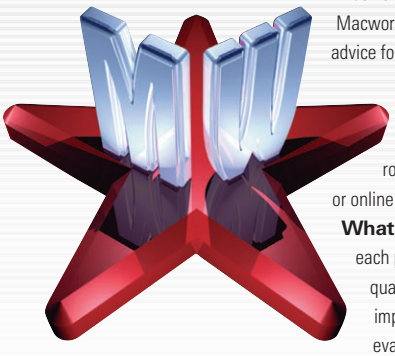
■ Entry-level:
**Processors:** 1 x 1.6GHz G5
**Frontside Bus:** 800MHz
**Memory:** 256MB DDR (Max: 4GB)
**Hard disk:** 80GB Serial ATA
**Optical:** DVD-R SuperDrive (4x)
**PCI:** 3 x 33MHz
**Video card:** 64MB GeForce FX 5200 Ultra
**Price:** £1,399
**Star Rating:** ★★★★/8.5

■ Mid-range:
**Processors:** 2 x 1.8GHz G5
**Frontside Bus:** 900MHz
**Memory:** 512MB DDR (Max: 8GB)
**Hard disk:** 160GB Serial ATA
**Optical:** DVD-R SuperDrive (4x)
**PCI-X:** 1 x 133MHz; 2 x 100MHz
**Video card:** 64MB GeForce FX 5200 Ultra
**Price:** £1,899
**Star Rating:** ★★★★★/9.0

■ High-end:
**Processors:** 2 x 2GHz G5
**Frontside Bus:** 1GHz
**Memory:** 512MB DDR (Max: 8GB)
**Hard disk:** 160GB Serial ATA
**Optical:** DVD-R SuperDrive (4x)
**PCI-X:** 1 x 133MHz; 2 x 100MHz
**Video card:** 64MB ATI Radeon 9600 Pro
**Price:** £2,299
**Star Rating:** ★★★★★/9.0

# Macworld Star Ratings

## Recommendations you can trust



*Macworld*'s Star Ratings section lets you compare Macintosh products by providing summaries of Macworld's authoritative hardware product reviews from the past year. It includes detailed buying advice for each product category and a fuller description of our Editors' Choice winners. Alongside the list of Macworld Star Ratings are handy tips and further product buying advice.

Star Ratings for Mac systems are published in the Mac Systems Guide – see earlier. Subscribers can go to **www.macworld.co.uk** to explore our comparative feature round-ups and reviews for both software and hardware. Listings tell you which back-issue, or online archive, to search.

**What the scores mean** The number of stars indicates the product's level of quality; each product also gets a numeric score that provides a more exact assessment of the product's quality within that level. We evaluate seven factors to derive the star rating: feature set; design implementation; performance; reliability; ease of use; innovation; and value. We take these evaluations, weight their importance for each product class, and calculate the final score.

| REAL PRODUCTS | REAL RATINGS | |
|---|---|---|
| ★★★★★ | 9.0 to 10.0 | Outstanding |
| ★★★★ | 7.0 to 8.9 | Very good |
| ★★★ | 5.0 to 6.9 | Good |
| ★★ | 3.0 to 4.9 | Flawed |
| ★ | 0.0 to 2.9 | Unacceptable |

Macs are used in most recording studios because a Mac's PowerPC processor is more efficient than Intel chips running at the same speed, so it can handle extra channels and signal processing, or both simultaneously. Apple's **GarageBand** (part of the £39 **iLife** suite) is a great place to start for budding digital musicians. See Macworld July 2003 for professional solutions.

If you're still linking Macs with 10BaseT **Ethernet**, move to the faster 100BaseT, available on all current Macs. The latest Power Macs and PowerBooks come with 1000BaseT (Gigabit) Ethernet, which is even faster than 100BaseT.

Apple's **AirPort Extreme** is a fast wireless-networking technology. Add a £59 (2.0) or £79 (Extreme) card, and you can network and browse the Web cablelessly up to 150ft away from your £149 or £189 Base Station. AirPort works with all current Macs, and is now a viable alternative to wire-based networking. If you can, upgrade your Internet connection to **broadband**, via ADSL, cable or satellite. You'll need either an ADSL router (recommended) or a special modem. Add extra peripherals Macs with a **USB** or **FireWire hub**.

It's a snap to load digital photos into a Mac. With **iPhoto**, digital photography moves to an even higher level. **Resolution** of digital cameras is measured in horizontal and vertical pixels: 1,024-x-768, etc. High-resolution images show a greater level of detail – and can be more readily enlarged – than images with fewer pixels. Manufacturers also list resolution in terms of the total number of pixels. For example, 1,280 horizontal by 960 vertical pixels create a total of 1.2 million pixels (1,280-x-960 = 1.2 megapixels.

Any camera with an aggregate resolution of over 1 million pixels is referred to as a **megapixel** camera. If you plan to use images on the Web, you can get by

## AUDIO / MUSIC

| | | |
|---|---|---|
| ★★★★/7.0 | **AV320**, Archos, *01264 366 022*, £560 (inc. VAT). Audio and video in your hand. Outputs to TV, but not too easy to use. | *Nov 2003* |
| ★★★★/8.5 | **E2c,** Shure, *Handheld Audio, 020 8880 3243,* £76 (inc. VAT). Great sound, and secure-fit headphones, but a little pricey. | *April 2004* |
| ★★★★/8.7 | **E3c,** Shure, *Handheld Audio, 020 8880 3243,* £149 (inc. VAT). Amazing sound, small headphones, and well worth every penny. | *April 2004* |
| ★★★★/8.7 | **HD 280 Professional,** Sennheiser, *0800 652 5002* £99 (inc. VAT). Outstanding sound, fully enclosed headphones. | *April 2004* |
| ★★★★/8.4 | **HD 437,** Sennheiser, *0800 652 5002,* £19.95 (inc. VAT). Inexpensive headphones, great sound, but bulky. | *April 2004* |
| ★★★/6.5 | **In-ear headphones,** Apple, £35 (inc. VAT). Apple's own-brand earbuds still lack that quality feel and sound. | *April 2004* |
| ★★★★★/9.0 | **iPod 20GB,** Apple, £299 (inc. VAT). Super-slim player holds 5,000 tunes, has solid-state controls, and dock. | *Nov 2003* |
| ★★★★★/9.2 | **iPod 40GB,** Apple, £399 (inc. VAT). Super-slim player holds 10,000 tunes, has solid-state controls, and dock. | *Nov 2003* |
| PREVIEW | **iPod mini,** Apple, expected to be £199. The brand-new 4GB MP3 player – complete with new case design. | *March 2004* |
| ★★★★/8.8 | **JBL Creature,** Harman @ Computers Unlimited, *020 8200 8282,* £99. Speakers look great, but the sound quality could be better. | *March 2003* |
| ★★★★★/9.2 | **Mbox for OS X,** Digidesign, *01753 653 322*, £379. Records, edits and mixes multiple tracks, but needs free USB port on Mac. | *March 2003* |
| ★★★/6.7 | **MX 500,** Sennheiser, *0800 652 5002,* £19.95 (inc. VAT). Inexpensive headphones with a volume control. | *April 2004* |
| ★★★★★/9.0 | **PowerWave,** Griffin @ AM Micro, *01392 426 473,* £99 (inc. VAT). Excellent-quality audio and includes software. | *March 2003* |
| ★★★★/8.6 | **PX 200,** Sennheiser, *0800 652 5002,* £40 (inc. VAT). Compact, excellent sound and good value headphones. | *April 2004* |
| ★★★★/8.7 | **SliMP3,** Slim Devices @ Multitask Computing, *01322 380 023,* £209 (inc VAT). Stylish wireless functionality, MP3 streamer. | *March 2003* |
| ★★★★/8.2 | **Squeezebox,** Slim Devices, *Multitask Computing, 0871 250 5619,* £249 (inc. VAT). Listen to iTunes on your home stereo. | *Oct 2003* |
| ★★★/6.6 | **Voice Recorder,** Belkin, *00800 2235 5460,* £39 (inc. VAT). Nifty microphone for dock-enabled iPods. | *Expo 2003* |

## CONNECTIVITY / NETWORKING

*Servers, routers, software, remote access, SCSI cards, emulators, hubs, adaptors…*

| | | |
|---|---|---|
| ★★★★/8.8 | **AMX-64**, ADSL Nation, *01865 761 114,* £99 (inc VAT). Affordable 4-port ADSL router that's easy to set-up. | *Expo 2002* |
| ★★★★/8.5 | **Cayman 3341**, Netopia, *020 8358 5858,* £99 (inc VAT). Affordable 2-port ADSL router that's easy to set-up. | *Sept 2003* |
| ★★★★/8.8 | **DG814**, Netgear, *020 7216 0014,* £95 (inc VAT). 4-port ADSL router that's easy to set-up. | *Expo 2002* |
| ★★★★/7.6 | **extendAIR Direct**, Dr Bott; Channel Dynamics, *0870 607 0540,* £139 (inc VAT). Antenna to extend AirPort's range. | *Jan 2004* |
| ★★★★/8.5 | **GSW-8**, Corega, *08705 168 626,* £115 (inc VAT). 8-port Gigabit Ethernet switch. | *Sept 2003* |
| ★★★★/7.5 | **SpeedTouch 510**, *01295 222 170,* £163 (inc VAT). Stylish and secure ADSL router, let down by hard-to-follow set up. | *Expo 2002* |
| ★★★★/8.8 | **SpeedTouch 330**, Alcatel, *01295 222 170,* £79 (inc VAT). Stylish, compact ADSL modem that's Mac OS X-friendly. | *Expo 2002* |
| ★★★★/8.7 | **StingRay**, Hermstedt, *020 8200 8282,* from £2,895 (ex VAT). Cheap to run, secure and easy-to-use file-transfer solution. | *Feb 2003* |

## DIGITAL CAMERAS / CAMCORDERS / VIDEO-CON

*Consumer and professional; still and video; Apple's iPhoto. All prices include VAT.*

**Digital-still cameras**

| | | |
|---|---|---|
| ★★★★/8.1 | **007 JB1**, Digital Dream, *01304 248 200*, £69. Zippo-sized 0.3-megapixel gadget-camera – basic quality, but tons of fun. | *Expo 2003* |
| ★★★/6.7 | **Camedia C-350**, Olympus, *0800 072 0070*, £249. Easy to use and traditionally styled 3.2-megapixel model. | *Aug 2003* |
| ★★★/6.9 | **C-740 Ultra Zoom**, Olympus, *020 7253 2772*, £299. 3.2-megapixel unit offering excellent images, but poor documentation. | *Dec 2003* |
| ★★★★/7.0 | **Caplio G4/Wide**, Ricoh, *01782 753 300,* £199. A 3.2-megapixel model offering fast shutter response and a great lens. | *Jan 2004* |
| ★★★/6.7 | **Cyber-shot DSC-V1**, Sony, *08705 111 999*, £546. Well-designed 5-megapixel model; delivers noisy shots, though. | *Dec 2003* |
| ★★★/6.5 | **Dimage Xt**, Minolta, *01908 200 400,* £249. Slimline 3.2-megapixel unit with easy-to-use movie mode. | *Dec 2003* |
| ★★★★/8.7 | **EOS 10D**, Canon, *08705 143 723,* Body-only, £1,499. Great digital SLR with well-balanced mix of features, comfort and quality. | *Oct 2003* |
| ★★★★/8.6 | **EOS 300D**, Canon, *08705 143 723,* £999. True SLR with removable lenses and low price, but no rear-mounted control-wheel. | *Expo 2003* |
| ★★★★/8.6 | **FinePix A303** Fujifilm, *020 7586 1477,* £449. SuperCCD offers an effective resolution of six megapixels. | *Sept 2003* |
| ★★★★/7.8 | **FinePix F410 Zoom** Fujifilm, *020 7586 1477,* £299. Decent 3-megapixel entry-level with 3x zoom. | *Sept 2003* |
| ★★★★/8.5 | **FinePix F601 Zoom** Fujifilm, *020 7586 1477,* £499. SuperCCD offers an effective resolution of six megapixels; funky look. | *Sept 2003* |
| ★★★/6.6 | **Lumix DMC-FZ1**, Panasonic, *08705 357 357,* £329. Stunningly fast 2-megapixel unit that unfortunately lacks full manual controls. | *Dec 2003* |
| ★★★★/7.5 | **Mju 300**, Olympus, *020 7253 2772,* £299. Responsive 3.2mp model with reliable picure quality, but a lack of manual controls. | *Jan 2004* |
| ★★★★/8.5 | **PowerShot A80**, Canon, *08705 143 723,* £349. Responsive 4-megapixel camera that boasts spanking image-quality. | *Expo 2003* |

| | | |
|---|---|---|
| ★★★★/8.0 | **PowerShot G5**, Canon, *08705 143 723*, £628. An excellent 5-megapixel camera with add-on lens and flash support. | *Dec 2003* |
| ★★★★/8.6 | **Photosmart 735**, HP, *08705 47 47 47*, £179. A cheap-as-chips, no-nonsense 3.2-megapixel camera with 3x optical zoom. | *Nov 2003* |
| ★★★★/8.2 | **Revio KD-420Z**, Konica Minolta, *020 8751 6121*, £249. Blindingly fast and rugged 4-megapixel model with great image quality. | *Jan 2004* |
| **Consumer digital camcorders** | | |
| ★★★★/8.0 | **DM-MV5i,** Canon, *0800 616 8883*, £850. This camcorder has good specs, but is £50-£100 more than equally specced models. | *March 2003* |
| ★★★★/8.5 | **DM-MX2i,** Canon, *0800 616 8883*, £1,149. With optical stabilization, this camcorder delivers crisp pictures – at a price. | *March 2003* |
| ★★★★/8.0 | **DS60**, Panasonic, *08705 357 357*, £399. Low price, decent build quality, high performance, but awkward zoom and no stills. | *May 2004* |
| ★★★★/7.0 | **GRD23EK**, JVC, *0870 330 5000*, £399. 16x zoom, decent menus, low price, but marred by bottom-loading tape and no DV-In. | *May 2004* |
| ★★★★/7.7 | **GRD73EK**, JVC, *0870 330 5000*, £499. 16x zoom, DV-In/Out, low price. Fine for stills, but has no viewfinder tilt. | *May 2004* |
| ★★★★/8.6 | **iSight**, Apple, £119. Idiot-proof, portable webcam that ties in well with iChat AV. | *Sept 2003* |
| ★★★★/8.7 | **MVX10i,** Canon, *08705 143 723*, £399. Impressive picture performance with 18x zoom, but can't take stills. | *May 2004* |
| ★★★★/7.9 | **MV700,** Canon, *08705 143 723*, £1,099. Stills, easy tape-loading, DV-In/Out. Lacks manual focus ring; controls a little crowded. | *May 2004* |
| ★★★★/8.6 | **NV-GX7**, Panasonic, *0870 357 357*, £750. Excellent image quality, a stills mode and night shooting. | *March 2003* |
| ★★★/6.8 | **PC105E**, Sony, *020 7365 2947*, £699. 18x zoom lens, good menu system and excellent build – but too fiddly, and no stills function. | *May 2004* |
| **FireWire webcams** | | |
| ★★★★/7.7 | **Fire-i,** Unibrain; Channel Dynamics, *0870 607 0540*, £92. Great in low light, compact, but mediocre quality on colours and pictres. | *Jan 2004* |
| ★★★★/7.7 | **iBot Standard,** Orange Micro; Channel Dynamics, *0870 607 0540*, £88. Great picture quality, but bulky and poor software. | *Jan 2004* |
| ★★★★/8.6 | **iSight,** Apple, £119. Excellent picture quality; built-in mic; great design, but poor in low-light conditions. No additional software. | *Jan 2004* |
| ★★★★/8.3 | **Pyro 1394 WebCam,** ADS; Datavision UK, *01525 406 886*, £89. Great picture quality and software, but a little bulky. | *Jan 2004* |

## DISPLAY

*Monitors, projectors and video cards.*

| | | |
|---|---|---|
| **17-inch flat-panel LCD displays** | | |
| ★★★★/8.8 | **17-inch Studio Display**. Apple, *0800 039 1010*, £549 (inc VAT). Apple's 1,280-x-1,024-pixel screen is big as well as beautiful. | *July 2002* |
| ★★★★/7.7 | **C783,** Microtek, *01372 844 880*, £553. Good-value if-dull flat-panel offering built-in speakers. | *July 2002* |
| ★★★★★/8.8 | **Gallery 1740,** Formac, *020 8533 4040*, from £528 (inc VAT). Great-looking 17.4-inch 1,280-x-1,024-pixel ADC monitor. | *July 2002* |
| ★★★★/7.7 | **SyncMaster 171S**, Samsung, *0800 521 652*, £489. Compact, lightweight LCD screen that's nicely styled. | *July 2002* |
| **18-inch flat-panel LCD displays** | | |
| ★★★★/7.7 | **FlexScan L685-EX,** Eizo, *01483 719 500*, £1,089. Compact 18.1-inch 1,280-x-1,024-pixel LCD monitor. | *July 2002* |
| ★★★★/8.6 | **MultiSync LCD 1880SX,** NEC, *0801 201 160*, £959. Compact, attractive 18.1-inch 1,280-x-1,024-pixel LCD monitor. | *July 2002* |
| ★★★★/8.6 | **photon18blue**, LaCie, *020 7872 8000*, £899. 18-inch 1,280-x-1,024-pixel LCD screen boasting great image quality. | *July 2002* |
| **19-22-inch flat-panel LCD displays** | | |
| ★★★★★/9.2 | **Cinema Display HD**, Apple, *0800 039 1010*, £1,699 (inc VAT). **Editors' Choice: High-end flat-panel displays** Excellent high-definition 1,920-x-1,200-pixel screen that's suitable for use with high-end digital-video editing. | *March 2003* |
| ★★★★★/9.0 | **Cinema Display**, Apple, *0800 039 1010*, £1,009 (inc VAT). Apple's 20-inch screen has a 1,680-x-1,050 wide-screen resolution. | *March 2003* |
| ★★★★/8.5 | **FlexScan L767,** Eizo, *01483 719 500*, £734. Affordable 19-inch LCD that comes with a digital interface. | *June 2003* |
| ★★★★/8.3 | **FlexScan L985-EX,** Eizo, *01483 719 500*, £1,561. Monster 21-3-inch LCD that's pricey, but is of undeniable quality. | *June 2003* |
| ★★★★/8.5 | **MultiSync LCD1920NX,** NEC, *0801 201 160*, £750. A good-value 19-inch LCD that offers a digital interface. | *June 2003* |
| ★★★★/8.3 | **MultiSync LCD2080UX,** NEC, *0801 201 160*, £1,048. 20.1-inch LCD that's well-priced, and includes an auto-adjust feature. | *June 2003* |
| ★★★★/8.7 | **P922E,** CTX, *01923 810 800*, £545 (inc. VAT). Inexpensive 19-inch LCD with USB 2.0 hub. | *Oct 2003* |
| ★★★★/8.6 | **Photon20Vision**, LaCie, *020 7872 8000*, £1,404. Quality 20.1-inch flat panel with calibration option, desk clamp and hood. | *June 2003* |
| ★★★★/8.7 | **S962A LCD Monitor,** CTX, *01923 810 800*, £492 (inc VAT). Affordable 19-inch flat-panel display. | *Jan 2004* |
| **21-inch+ CRT displays** | | |
| ★★★★/8.0 | **Diamond Pro 2070SB,** Mitsubishi, *020 7202 6300*, £485. Top features at a great price. It can display at 2,048-x-1,536-pixels at 85Hz. | *April 2004* |
| ★★★★/8.4 | **electron22blue IV**, LaCie, *020 7872 8000*, £549. If you can't stretch to a Barco screen, this offers amazing quality and value. | *April 2004* |
| ★★★★/7.0 | **FlexScan T966,** Eizo, *01483 719 500*, £659. 21-inch aperture-grille at a reasonable price. | *Jan 2003* |
| ★★★★/7.9 | **Multiscan F520,** Sony, *08705 111 999*, £769. This is a high-quality monitor, but you pay extra for the Sony brandname. | *April 2004* |
| ★★★★/7.1 | **P225f,** Viewsonic, *01293 643 900*, £399. Inexpensive and low on features, but it's a still 22-inch CRT display for under £400! | *April 2004* |
| ★★★★/8.3 | **Reference Calibrator V,** Barco@Typemaker, *0221 604 1234*, £3,250. Pricey, but colour-accurate display is losing edge on rivals. | *April 2004* |
| ★★★★/8.3 | **SM1200NF**, Samsung, *0800 521 652*, £489. The screen looks dated, but it's feature rich with a decent resolution. | *Jan 2003* |
| ★★★★/7.7 | **VisionMaster Pro 513,** Iiyama, *01438 745 482*, £369. A great choice if you want cheap and cheerful. | *Jan 2003* |
| **Projectors** | | |
| ★★★★/7.6 | **LiteShow**, InFocus, *0800 028 6470*, £349. AirPort connection to the LP120 projector. | *Dec 2003* |
| ★★★★★/9.1 | **LP120**, InFocus, *0800 028 6470*, £1,999. Tiny, fully featured 1,100 ANSI lumen projector – the best there is. | *Dec 2003* |
| **Display/TV hardware** | | |
| ★★★★/8.5 | **Alchemy TV**, Miglia @ AM Micro, *01392 426 473*. TV tuner that can transfer VHS tapes to a Mac. | *Jan 2004* |
| ★★★★/8.0 | **CinemaLift**, LCDArms, *www.lcdarms.com*, £175. Well-designed flexible arm for raising a Cinema Display up to eye level. | *Jan 2004* |
| ★★★★/8.7 | **EyeTV 400**, El Gato @ CU, *020 8358 5857*, £249. Easy-to-set-up method of watching television on your Mac. | *May 2004* |
| ★★★★/8.8 | **EyeHome**, El Gato @ CU, *020 8358 5857*, £199. Digital-media player to work with EyeTV. Keeps all media in one place. | *May 2004* |
| ★★★★/8.2 | **Graphire3 Studio XL**, Wacom, *Computers Unlimited, 020 8358 5858*, £179. A5 tablet with stylus and scroll-wheel mouse. | *Dec 2003* |

## INPUT

*Mice, trackballs, digital tablets… All prices include VAT.*

| | | |
|---|---|---|
| ★★★/6.9 | **Harmony Remote SST-768**, Harmony, *Invision UK, 01449 677 233*, £200. Expensive programmable USB remote control. | *April 2004* |
| ★★★★/8.4 | **Memory Optical Mini**, IO Gear, *Disruptive, 01494 522 721*, £47. Small laptop mouse with 32MB of built-in storage. | *May 2004* |
| ★★★★/8.6 | **Nostromo n52 SpeedPad**, Belkin, *00800 223 5546*, £29.99. Convenient one-handed controller for gaming. | *May 2004* |
| ★★★★★/9.0 | **The Mouse**, MacMice, *AM Micro, 01392 426 743*, £34. What the Apple mouse could've been. Two buttons, scroll wheel. | *May 2004* |

with a low-res camera. If you want to use the images in print at anything greater than postage-stamp size, at least a two-megapixel camera is a must. Look for optical resolution; ignore interpolated resolution.

Select a camera that offers the option of switching between high-res/fewer shots and lower-res/many shots. SmartMedia **storage** cards are cheaper but flimsier, and offer less storage than CompactFlash cards. Sony cameras use MemorySticks. Other formats include SecureDigital, Multimedia, and the tiny XD Picture card. Digital cameras tend to be **battery** hogs, so rechargeable batteries are a must. NiCad batteries are cheaper than NiMH batteries, but the latter last longer between charges.

Those who don't own a **digital-video camcorder** are missing out on one of the best reasons to own a Mac. All of Apple's Mac models, even the least-expensive iMac, have built-in FireWire ports and iMovie software, making the creation of professional-looking videos for business, home, and school projects very easy.

Most camcorders use MiniDV tapes, tiny cassettes that store 60 minutes of high-quality digital video in standard-play mode or 90 minutes in long-play mode. Sony's MicroMV digital-video format is not yet supported. Once you record video, you can upload it to a Mac via a **FireWire** cable and edit it using either Apple's **iMovie** or a higher-end program such as Apple's **Final Cut Pro/Express**. Add effects with **Adobe After Effects**.

The DV format stores video at more than twice the resolution of standard VHS or 8mm tapes, and it stores 25 per cent more information than S-VHS or Hi8 tapes. Colour fidelity and noise immunity are also markedly better on DV tapes than on analogue tapes, resulting in breathtaking video quality. And because the recorded video is digital, you can upload it to your Mac or copy it to another DV tape without any loss of quality.

Aim for a FireWire digital camcorder with both **DV-In** and **-Out**, as this means you can transfer your edited movie from your Mac back to MiniDV tape. This doesn't matter if you plan to export to DVD.

The first decision you'll need to make is whether to get a flat-panel display, based on liquid crystal display (**LCD**) technology, or a cathode-ray tube (**CRT**) monitor.

CRTs are cheaper and offer higher colour vibrancy and accuracy than LCDs. If low price is your biggest requirement, or if you're looking for a display for publishing or design work, go with a CRT.

An LCD display's advantage is unparalleled sharpness and ultra-thin profile. If space considerations, or a cutting-edge look, top your list of concerns, and you can afford it, today's flat-panel displays are worth a serious look. With a flicker-free screen and tiny footprint, an LCD is easy on the eyes in more than one sense.

Today's monitors offer one or more of the following connections: VGA, DVI, or ADC. A screen hooked-up to a digital DVI or ADC connector offers sharper, clearer images than those connected via an analogue VGA connector. Analogue LCDs can display "noise", a by-product of converting the video signal from digital to analogue and then back again. The ADC (Apple Display Connector) port combines a DVI signal with power and USB. The single cable leaves your desk relatively clutter free, but ADC is available only on cards shipping in Power Mac G4s and Cubes released after August 2000.

Except for the Apple displays, most monitors can plug directly into an analogue VGA connector, making them compatible with current and older desktops and laptops. Some models offer both analogue and digital inputs. These are the most compatible, as they can plug

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into DVI or standard VGA connectors and, with a third-party adaptor, into ADC ports. The Apple displays require the ADC port available on only recent G4 and G5 desktops.

When comparing the image size of displays, be sure to check the **viewable image size**, not the claimed size of the CRT or flat-panel. The **resolution** of a monitor is expressed in horizontal and vertical pixel dimensions, and range from 640-x-480 pixels to 1,600-x-1,200 pixels and beyond. The higher the resolution, the more you will be able to see on-screen. The more inches, the larger the pixels.

A CRT's **dot pitch** measures how close adjacent phosphor dots (or stripes on aperture-grille CRTs) are to each other. In general, the smaller the dot pitch, the sharper (and more expensive) the display will be.

On CRT monitors, a low **refresh rate** – how many times your Mac sends a fresh copy of the screen image to your display – implies flicker, a major cause of eyestrain. The higher the refresh rate, the better. LCDs don't suffer from flicker at all.

High-end monitors may also come with **calibration** software and devices for ensuring accurate colour for publishing and design applications.

Input devices come in many shapes and sizes. Go for an **optical mouse**, which are less prone to wear-&-tear than the old-style mice. Apple's mouse is good, but lacks extra buttons and a scroll wheel – fantastic for zipping through documents and Web pages.

**Graphics tablets** are now very advanced and often come with pressure-sensitive pens, which enable more control when using natural-media graphics software like Painter. The harder you press, the thicker the line. They take some getting used to, but many artists swear by them – not at their mice!

The range of printers available is huge: fast network printers, for business, to slower-but-cheap colour printers for home.

Decide what you need from your printer, look at your budget and, most importantly, look at the **output** of the printer. The only way to avoid disappointment is to have a dealer print out a page in front of you. Remember that the test prints shown in shops are often done on expensive glossy paper.

**Speed** is also an issue. At home, waiting 15 minutes for a colour page to print may be acceptable. In the office, however, time is money – meaning that faster printers are needed.

**Home/small office use:** A4 Inkjets are the cheapest printers to buy, and can output near-photographic quality prints – great with digital cameras. If you mainly run-out black-&-white prints of letters and so forth, consider a mono laser printer (which cost from around £250).

**Business use:** Fast, networkable mono lasers cost from £500. Decent colour lasers will set you back at least £1,000. Design studios should consider a colour proofer – available from HP and Epson.

**Multifunction devices:** Companies such as HP and Lexmark offer all-in-one devices that include a printer, scanner, copier and fax. These save desk space, but aren't the best alternative at each of their functions.

Remember to find out the price of **consumables**. An inkjet can get through a cartridge in just a few months. Macworld tests for how many high-colour pages you'll get out of a cartridge, so check our product round-ups.

| | | |
|---|---|---|
| ★★★★/8.4 | **USB Optical Mini**, IO Gear, *Disruptive, 01494 522 721*, £23. Small, no-frills laptop mouse. | *May 2004* |
| ★★★★/7.3 | **Wireless Keyboard**, Apple, *0800 039 1010*, £59. Bluetooth keyboard complete with 128-bit encryption. | *Dec 2003* |
| ★★★★/8.8 | **Wireless Intellimouse Explorer 2.0**, Microsoft, *0870 207 7377*, £55. Five-button, side-scrolling optical mouse. | *Jan 2004* |
| ★★★/6.5 | **Wireless Mouse**, Apple, *0800 039 1010*, £59. Bluetooth mouse. Lacks a scroll-wheel. | *Dec 2003* |
| ★★★★/8.8 | **Wireless Optical Desktop Elite Executive Edition**, Microsoft, *0870 207 7377*, from £99. All-singing, all-dancing keyboard. | *Jan 2004* |
| ★★★★/8.2 | **Wireless Optical Mini**, IO Gear, *Disruptive, 01494 522 721*, £47. Small wireless laptop mouse. | *May 2004* |
| ★★★★/8.9 | **Wireless Optical Mouse 2.0**, Microsoft, *0870 207 7377*, £39. Super-smooth scrolling; scrolls sideways; three-buttons. | *Jan 2004* |

## PDAs

*Personal digital assistants and related third-party hardware and software.*

| | | |
|---|---|---|
| ★★★★/7.5 | **Tungsten E**, Palm, *0118 927 8700*, £149. Affordable, no-frills PDA with SD-card slot | *Expo 2003* |
| ★★★★/8.7 | **Tungsten T3**, Palm, *0118 927 8700*, £329. Bluetooth-compatible PDA with big screen and multimedia capabilities. | *Expo 2003* |
| ★★★★/8.0 | **Zire**, Palm, *0118 927 8700*, £88. Inexpensive PDA with rechargeable batteries. | *May 2003* |

## PRINTING

*Inkjets, lasers, workgroup, thermal wax, dye sublimation, solid ink and software solutions.*

**All-in-one printer, scanner, copiers** *(All prices include VAT).*

| | | |
|---|---|---|
| ★★★★/8.9 | **PSC 1205,** Hewlett-Packard, *08705 474 747*, £99. Compact, affordable, relatively fast all-in-one offers good quality photos. | *Sept 2003* |
| ★★★★/8.9 | **PSC 2175,** Hewlett-Packard, *08705 474 747*, £169. Fast all-in-one with six-ink option for even better photo quality. | *Sept 2003* |
| ★★★★/7.4 | **x1150**, Lexmark, *0870 444 0044*, £79. Affordable, good-looking but very slow all-in-one. | *Sept 2003* |
| ★★★★/8.2 | **x5150**, Lexmark, *0870 444 0044*, £129. Affordable, good-looking but slow all-in-one. | *Sept 2003* |

**Consumer/entry-level pro** *(All prices include VAT).*

| | | |
|---|---|---|
| ★★★★/8.3 | **DeskJet 5150**, HP, *08705 474 747*, £89. A4 inkjet that excels at colour photos; optional six-colour cartridge. | *Nov 2003* |
| ★★★★/8.9 | **i450**, Canon, *08705 143 723*, £99. Low-price colour A4 inkjet that outputs great quality for the price. | *Sept 2003* |
| ★★★★/8.6 | **i470D**, Canon, *08705 143 723*, £179. A4 inkjet that outputs great quality, and includes memory-card reader. | *Sept 2003* |
| ★★★★/8.9 | **i6500**, Canon, *08705 143 723*, £339. Great A3+ photographic output, very fast and quiet. | *Sept 2003* |
| ★★★★/8.6 | **i905D**, Canon, *08705 143 723*, £250. A4 photo-printer. Relatively speedy and prints on CDs, but colour profiles need improving. | *March 2004* |
| ★★★★/8.4 | **i965D**, Canon, *08705 143 723*, £250. As i905D but much faster. Lacks the i905's computerless printing capabilities. | *March 2004* |
| ★★★★/8.9 | **i990**, Canon, *08705 143 723*, £299. Near-perfect quality, lightning-fast A4 inkjet printer – worth every penny. | *April 2004* |
| ★★★/6.6 | **P-440**, Olympus, *020 7253 2772*, £399. Expensive A4 inkjet. Speedy, but print-quality and colour-matching are lacklustre. | *March 2004* |
| ★★★★/8.5 | **P-Touch**, Brother, *0845 606 0626*, £399. Thermal-transfer label printer. Fast, clean, huge media choice, but pricey. | *May 2004* |
| ★★★★/8.3 | **Photosmart 7960**, HP, *08705 474 474*, £249. A4 inkjet. Decent colour reproduction, but expensive and rather slow. | *March 2004* |
| ★★★★★/9.0 | **Stylus C42UX**, Epson, *0800 200 546*, £59. Slow, but offers spectacular colour quality for the price. | *Oct 2002* |
| ★★★★/7.7 | **Stylus C80**, Epson, *0800 200 546*, £149. Entry-level 2,800dpi model that uses pigment inks for better output on plain paper. | *Oct 2002* |
| ★★★★/8.9 | **Stylus Photo 830U**, Epson, *0800 200 546*, £99. A photo printer for £99 is a great deal – especially when output is outstanding. | *July 2003* |
| ★★★★/8.1 | **Stylus Photo 925,** Epson, *0800 200 546*, £249. Doesn't need a computer to print from memory cards. | *Jan 2003* |
| ★★★★/8.6 | **Stylus Photo 935,** Epson, *0800 200 546*, £229. Top-quality output, six-colour inks, standalone printing. | *Sept 2003* |
| ★★★★/8.9 | **Stylus Photo R300**, Epson, *0800 200 546*, £129. Six-colour A4 inkjet. Computerless prints, great colour. Detail could be better. | *March 2004* |
| ★★★★/7.4 | **Stylus Pro 4000**, Epson, *0800 200 546*, £1,495. Eight-colour inkjet proofer with colour-management issues. | *May 2004* |
| ★★★/5.5 | **Z705**, Lexmark, *0870 444 0044*, £59. Affordable A4 inkjet that sadly lacks in speed and output-quality. | *March 2004* |
| ★★★★/8.2 | **z705 Photo JetPrinter**, Lexmark, *0870 444 0044*, £59. Affordable but very slow. | *Sept 2003* |

**Professional** *(All prices exclude VAT)*

A3 colour lasers

| | | |
|---|---|---|
| ★★★★/7.1 | **AcuLaser C8600PS**, Epson, *0800 200 546*, £3,879. Slow yet high-quality graphics-oriented A3+ colour laser. | *May 2003* |
| ★★★★/8.8 | **Elite Color 16**, GCC, *020 8380 6870*, £1,399. Bargain-priced, duplexing high-quality colour laser printer. | *Expo 2003* |
| ★★★★/8.7 | **C752n**, Lexmark, *0870 444 0044*, £1,879. A4 colour laser that offers decent-quality prints at a fair speed. | *Expo 2003* |
| ★★★★/8.7 | **C9500**, Oki, *0800 917 6015*, £4,869. Super-fast A3 laser ideal for the most demanding office environment. | *May 2003* |
| ★★★★★/9.1 | **CL30**, Xanté, *0870 742 0802*, £4,249. Feature-laden graphics A3 laser printer that is both speedy and well-priced. | *May 2003* |
| ★★★★★/9.0 | **PlateMaker 4**, Xanté, *0870 742 0802*, £4,499. Complex, quality mono laser printer for producing computer-to-plate plates. | *July 2003* |
| ★★★★★/90 | **Phaser 6250n**, Xerox, *0870 241 3245*, £1,609. Fast, affordable colour laser printer that offers excellent quality | *Expo 2003* |
| ★★★★/8.4 | **Phaser 7700**, Xerox, *0870 241 3245*, £5,520. Speedy, well-priced graphics A3 laser. | *May 2003* |

A4 colour lasers

| | | |
|---|---|---|
| ★★★★/8.1 | **AcuLaser C1900PS**, Epson, *0800 200 546*, £1,029. Multi-pass model that does well on speed, quality and price. | *May 2003* |
| ★★★★/8.0 | **AcuLaser C4000PS**, Epson, *0800 200 546*, £1,749. Single-pass laser that offer great output, but at a high price. | *May 2003* |
| ★★★★/8.3 | **C750**, Lexmark, *08704 440 044*, £2,059. Ultra-speedy single-pass laser that's also economical on consumables. | *May 2003* |
| ★★★★/7.7 | **HL-4000CN**, Brother, *0845 606 0626*, £1,780. Competitively priced single-pass model. | *May 2003* |
| ★★★★/8.1 | **HP 2500**, HP, *08705 474 747*, £829. Affordable, if slow, multi-pass A4 that offers decent output. | *May 2003* |
| ★★★★/7.3 | **HP 4600**, HP, *08705 474 747*, £1,599. Reasonably priced single-pass A4 model. | *May 2003* |
| ★★★★/8.0 | **Magicolor 2350**, Minolta-QMS, *01784 442 255*, £849. High quality at a superb price, but rather slow. | *May 2003* |
| ★★★★/7.3 | **Magicolor 3100**, Minolta-QMS, *01784 442 255*, £1,795. A slightly overpriced single-pass laser printer that offers quality output. | *May 2003* |
| ★★★★/8.0 | **C5300n**, Oki, *0800 917 6015*, £1,069. Well-priced single-pass A4 laser that's both speedy and of high quality. | *May 2003* |
| ★★★★/8.0 | **C7500n**, Oki, *0800 917 6015*, £2,919. Speedy, feature-rich single-pass A4 laser. | *May 2003* |
| ★★★★/7.7 | **Phaser 6200n**, Xerox, *0870 241 3245*, £2,010. Speedy, if expensive, single-pass A4 printer. | *May 2003* |
| ★★★★/7.7 | **Phaser 8200**, Xerox, *0870 241 3245*, £1,610. Solid-ink single-pass A4 laser offers good quality and is also well-priced. | *May 2003* |
| ★★★★/8.4 | **AW 1200**, Xanté, *0870 742 0802*, £799. Inexpensive 1,200dpi mono A3+ laser printer. | *Oct 2002* |

## SCANNING

*Consumer and professional scanners*

**Consumer/entry-level** *(Prices include VAT. All models USB)*

| | | |
|---|---|---|
| ★★★★/8.2 | **CanoScan D2400UF**, Canon, *08705 143 723*, £219. 2,400dpi A4 scanner offering transparency adaptor. | *Nov 2002* |
| ★★★★/8.0/8.1 | **CanoScan LiDE 20 / 30**, Canon, *08705 143 723*, £59; £79. Ultra-thin entry-level 600dpi and 1,200dpi A4 scanners. | *Nov 2002* |
| ★★★★/8.6 | **IRISPen II Executive**, IRIS,@ Softline *01883 745 111*, £129. Cheap, accurate pen scanner that works with any application. | *May 2003* |
| ★★★★/8.1 | **Perfection 1260**, Epson, *0800 220 546*, £79. Basic 1,200dpi A4 scanner offering optional £45 transparency adaptor. | *Nov 2002* |
| ★★★★/8.0 | **Perfection 1660 Photo**, Epson, *0800 220 546*, £169. 1,600dpi A4 scanner offering a decent software bundle. | *Nov 2002* |
| ★★★★/8.6 | **Perfection 2400 Photo**, Epson, *0800 220 546*, £199. Capable 2,400dpi A4 scanner with built-in transparency adaptor. | *Nov 2002* |
| ★★★★/8.6 | **ScanJet 4670**, HP, *0870 547 4747*, £179. Innovative design; scans slides; easy storage, but cools looks mean a higher price. | *Jan 2004* |
| ★★★★/7.0 | **ScanJet 8200**, HP, *0870 547 4747*, £449. 4,800dpi resolution; transparency adaptor; USB 2.0. Overpriced. | *Nov 2003* |
| ★★★/6.8 | **ScanJet 8250**, HP, *0870 547 4747*, £749. 4,800dpi resolution; transparency adaptor; USB 2.0; document feeder. Expensive. | *Nov 2003* |

**Professional**

| | | |
|---|---|---|
| ★★★★/7.2 | **ArtixScan 1100**, Microtek, *01327 844 880*, £1,408. Overpriced SCSI-2, 1,000dpi, 42-bit A4 scanner. | *Expo 2002* |
| ★★★★★/9.0 | **ArtixScan 1800f**, Microtek, *01327 844 880*, £1,799. 1,800-x-3,600dpi A4 flatbed giving unbeatable scan quality . | *July 2003* |
| ★★★★/8.3 | **Expression 1680 Pro**, Epson, *0800 220 546*, £895. Quality USB/SCSI 1,600-x-3,200dpi, 48-bit A4 scanner, but lacking FireWire. | *Expo 2002* |
| ★★★★/7.9 | **Expression 1640XL Pro**, Epson, *0800 220 546*, £2,219. SCSI/USB 1,600-x-1,300dpi, 42-bit A3 model that lacks FireWire. | *Expo 2002* |
| ★★★★/8.9 | **PowerLook 1120**, Umax, *0870 906 4400*, £849. FireWire 1,200-x-2,400dpi, 42-bit A4 scanner offers great balance of features. | *Expo 2002* |
| ★★★★/7.8 | **PowerLook 2100XL**, Umax, *0870 906 4400*, £999. SCSI-2, 42-bit A3 scanner offers modest resolution of 800-x-1,600dpi. | *Expo 2002* |
| ★★★★/7.0 | **ScanJet 8290**, HP, *0870 547 4747*, £1,449. 4,800dpi; transparency adaptor; 25ppm document feeder; software is Windows-only. | *Nov 2003* |
| ★★★★/8.8 | **ScanMaker 9800XL** Microtek, *01327 844 880*, £1,748. FireWire/SCSI-2/USB 2.0, 1,600-x-1,300dpi, 48-bit A3 scanner. | |

**Film scanners** *(All prices include VAT)*

| | | |
|---|---|---|
| ★★★★/7.8 | **SmartScan 2700**, SmartDisk, *01252 530 960*, £189. Easy to use, inexpensive 2,700-pixel USB film scanner. | *July 2003* |
| ★★★/6.7 | **SmartScan 3600**, SmartDisk, *01252 530 960*, £189. 3,600-pixel FireWire film scanner that suffers from limited dynamic range. | *July 2003* |
| ★★★★/8.0 | **Dimage Scan Dual III**, Minolta, *01908 200 400*, £299. 2,820dpi Film scanner offering excellent dynamic range and colour fidelity. | *July 2003* |
| ★★★★/8.5 | **Dimage Scan Elite II**, Minolta, *01908 200 400*, £549. 2,820dpi FireWire film scanner with Digital ICE and GEM technologies. | *July 2003* |

If you need to get printed images into your Mac, but you don't have a digital camera or want to put your old photos on the Web, you need a scanner. Before buying a scanner you must consider the final output you're aiming for. If your job is for a glossy magazine, then a high-resolution drum scanner is what you need.

It's more likely, though, that that kind of scanning would be done by a pre-press house or a bureau. Some **high-end** flatbed scanners are actually approaching drum-scanner quality. Some professional scanners require a SCSI interface, so new Macs will require that a SCSI card be added. However, manufacturers are now adding FireWire and USB 2.0 interfaces to their top scanners.

You can buy a dedicated **slide scanner** or attach an optional slide tray to your flatbed. Some scanners have neat internal trays for ease of use.

If your needs are less great, there are many fair-quality **low-end** scanners at unbelievably cheap prices. Again, claims for quality are often based on resolution. Look at the optical resolution rather than the interpolated resolution, as interpolation is just a process of digitally enlarging the scan. Make sure that the connection (USB, SCSI or FireWire) is right for your Mac. Scanners often come with bundled software to let you manipulate the images once you have scanned them.

## STORAGE & UPGRADES

*Hard drives, CD, DVD, removable solutions, servers, and processor-upgrade cards*

**Servers**

| | | |
|---|---|---|
| ★★★★/8.0 | **Xserve**, Apple, from £2,399 including VAT. Apple's easy-to-manage enterprise server is well-placed to compete with PC solutions. | *Oct 2003* |

**Network Attached Storage**

| | | |
|---|---|---|
| ★★★★/8.5 | **Max**, CMS, *01256 681 246*, from £1,999. Fast and robust storage that's easy to use. | *Jan 2003* |

**Hard drives**

| | | |
|---|---|---|
| ★★★★/8.2 | **ABSplus**, CMS, *01256 681 246*, from £209. Portable FireWire backup solution. | *Jan 2003* |
| ★★★★/8.8 | **Big Disk 800**, LaCie, *020 7872 8000*, from £559. High-capacity FireWire 800 hard drives: 400GB (7,200rpm), 500GB (5,400rpm). | *Aug 2003* |
| ★★★★/8.5 | **Caviar WD2000**, Western Digital, @ Dabs, *www.westerndigital.com*, £201. Cheap, huge 200GB EIDE drive. | *June 2003* |
| ★★★★/8.4 | **Cobra 800**, EZQuest @ Channel Dynamics, *0870 60 70 540*, from £245. 7,200rpm FireWire 800 hard drive: 120/200/250GB. | *Aug 2003* |
| ★★★★/8.5 | **Crossfire 120GB**, SmartDisk, *01252 530 960*, from £153. FireWire/USB 2.0 hard drive. Compact, good software, but not too speedy. | *Expo 2003* |
| ★★★★/8.3 | **Desktop Hard Drive**, SmartDisk, *01252 530 960*, from £139. 7,200rpm FireWire hard drive: 80/120GB. | *April 2003* |
| ★★★★/8.3 | **Fire800**, WiebeTech @ Technical Earth, *020 8450 0303*, from £249. Reasonably priced 120/180/240GB. FireWire 800 drives. | *Aug 2003* |
| ★★★★/8.5 | **HDD 250**, Iomega, *www.iomega.co.uk*, £309. Fast 250GB FireWire hard-drive. Slow with USB 2.0, though. | *Expo 2003* |
| ★★★★/8.8 | **Ice Warrior 800**, Box Clever, *01525 240 188*, from £199. Affordable 120/200/250GB FireWire 800 hard drives. | *Aug 2003* |
| ★★★★/8.3 | **Media Bank HS-R**, Miglia, *0870 747 2988*, from £299. Dual hard-drive RAID array. FireWire 800 interface. | *March 2004* |
| ★★★★/8.6 | **One Touch 250**, Maxtor, *01923 712 448*, £329. Attractive FireWire-only hard drive with decent software bundle. | *Expo 2003* |
| ★★★★/8.0 | **PowerPlay Pro**, SmartDisk, *01252 530 960*, from £59. Handy collar-clip-sized 64MB USB storage and music player. | *July 2003* |
| ★★★★/8.4 | **Rover**, SmartDisk, *01252 530 960*, £59. Radio-controlled USB slide-show remote-control with 32MB of storage | *July 2003* |
| ★★★★/8.5 | **The Kube 500GB**, Box Clever @ Mac & More, *01525 240 188*, from £599. 5,400rpm FireWire RAID hard drive. Also 400/240GB. | *May 2003* |
| ★★★★/8.0 | **Xserve RAID**, Apple, £8,999 including VAT. Impressive 2.52TB server-storage solution. | *Oct 2003* |

**External CD/DVD drives** (all inc. VAT).

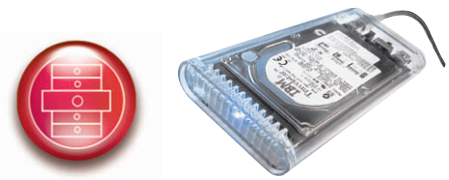
| | | |
|---|---|---|
| ★★★★/8.5 | **DSR Tower**, Microboards Technology, *0845 230 7800*, Mass DVD duplication. Fast, easy to use, but can't copy encrypted DVDs. | *April 2004* |
| ★★★★/7.7 | **Boa FireWire DVD-RW**, EZQuest @ Channel Dynamics, *0870 607 0540*, £317. DVD-R that offers solid performance. | *May 2003* |
| ★★★★/8.6 | **d2 FireWire DVD-Rewritable Drive**, LaCie, *020 7872 8000*, £304. Includes CaptyDVD 1 Mac DVD-authoring software. | *May 2003* |
| ★★★★/8.6 | **Devideon**, Formac, *020 8533 2489*, £304. DVD-R that includes Devideon 2 Mac DVD-authoring software. | *May 2003* |
| ★★★★/8.2 | **DVD±RW 8x4x24x**, LaCie, *020 7872 8000*, £142. Fast burning for data discs, but won't work with iMovie, iDVD, or DVD movies. | *May 2004* |

**Card readers** (all inc. VAT).

| | | |
|---|---|---|
| ★★★★/7.9 | **Media Reader**, Belkin, *00800 2235 5460*, £89 (inc. VAT). Multi-format storage-card reader for dock-equipped iPods. | *Expo 2003* |

**Upgrade cards** (all inc. VAT).

| | | |
|---|---|---|
| ★★★/6.9 | **PowerForce G4 ZIF 550/220**, PowerLogix, *www.powerlogix.com (see Int'l)*, £259. For beige G3, blue-&-white G3, pre-AGP G4 | *March 2003* |
| ★★★/6.8 | **PowerForce G4 Series 100 1GHz**, PowerLogix, *www.powerlogix.com (see Int'l)*, £630. AGP and Gb Ethernet PMG4s, Cube | *March 2003* |
| ★★★/6.6 | **PowerForce Dual G4 800MHz**, PowerLogix, *www.powerlogix.com (see Int'l)*, £690. AGP and Gb Ethernet PMG4. | *March 2003* |
| ★★★/6.5 | **PowerForce Dual G4 1GHz**, PowerLogix, *www.powerlogix.com (see Int'l)*, £1,030. AGP and Gb Ethernet PMG4. | *March 2003* |
| ★★★★/7.5 | **Encore/ZIF G4 500**, Sonnet, *www.sonettech.com (see Int'l)*, £259. Beige G3, blue-&-white G3, Pre-AGP G4. | *March 2003* |



**Hard drives:** It's easy to add extra internal hard disks to Power Macs, but other Macs are better served with external drives. All new Macs come with FireWire connections, which are much faster than USB.
You can buy portable FireWire hard drives that you can carry around with you, and also larger, faster drives that sit on the desktop. Buy FireWire 800 drives if your Mac has this super-fast port. Go for the fastest rotational disk speed (measured in rpm), and divide the price by the number of gigabytes to find the price per GB. Buy as big as you can now, to save having to buy again later.
**Removable disks:** Apple has turned its back on the now defunct 1.4MB **floppy** (what do you think email is for?) but you can still add a USB floppy drive for about £60.

**Zip** drives are still used for backup. The 250MB Zip supports original 100MB disks, and the 750MB model reads and writes 750MB and 250MB disks, and reads all 100MB disks. Despite the convenience of the format, it 's relatively expensive and less popular now that most Macs have some kind of optical storage as standard.

Subscribers to Apple's .Mac services (£65 per year) get 100MB of **iDisk** Web storage space, which can be used to quickly move data around the world.

**CD/DVD:** Optical storage technologies (**CD-R**, **CD-RW**, **DVD-R** and **DVD-RAM**) have become increasingly viable alternatives as prices fall dramatically. While stable and cheap – a blank 650MB CD-R sells for 45p – writing to a CD or DVD-RAM can be slow. CD-R is a write-once technology. But, unlike Jaz and Zip disks, dishing out CDs to friends or clients isn't financially painful. Your best CD choice may be a CD-RW (rewriteable) drive, which is a CD-R drive with the added ability to handle rewriteable media.

DVDs can hold 5.2GB of data, and the drives can read standard CDs. Watch movies on your Mac and play the latest multimedia DVDs. SuperDrive Macs can record DVDs that will play in domestic players. Apple's **iDVD** tool makes Macs so much better than Windows PCs in this regard. **MW**

# Andy Ihnatko

The physical interface between user and computer has progressed from keyboard to keyboard and mouse. What's next? And why haven't we seen it yet?

# Have a mice day

**'A simple, slimmed down Mini-Mac interface could allow you to exploit your Mac from anywhere in the room, not just from the chair at your desk. Your phone chirps; you pick it up and see an alert from your Mac warning you that Safari has unexpectedly quit.'**

Imagining a computer that doesn't use a pointing device is like trying to imagine a car without a steering wheel. Intellectually, you're aware that they used to build them that way. But no matter how gifted you are by way of creative visualization, you can't see how the automobile would have had such a transforming effect upon society if cars were still steered with tillers or cranks or any other of the many bad ideas that today you can only find in the Museum of Industry or possibly a cartoon zeppelin.

The mouse wasn't just an accessory. It was an *enabler*. A mouse needed a graphical user interface. A GUI meant a new, user-oriented OS that appealed to average humans, not just computer geeks. A less tech-savvy user base meant hardware had to be easier to set up, and peripherals that had to install and configure themselves on their own.

So if you're the guy who invented the mouse and you're reading this: good job. Honest. It goes to prove that no one product or piece of software can ever truly revolutionize technology. It's always done by some little thing that forces us to totally rethink all the assumptions we've made about how we're supposed to relate to computers and the services that they provide... backed up as always by people who Get It and push this new idea along.

But it's astonishing to remember that the Macintosh 128 was introduced two *decades* ago. Twenty years before *that*, one single piece of Internet porn – and not even the good stuff, mind you – would have filled up a computer that occupied a whole floor. Nerds of the day sneered that any computer that used a keyboard instead of toggle switches was just a toy.

A few years ago I theorized that the Next Big Thing would involve butts. Imagine the implications if every computer came with a mousepad *and* a buttpad. Now, obviously, only a gifted few of us have any rear-end dexterity at all, so forget about cursor control. But it'd be interesting enough as an input device if it only allowed my Mac to figure out whether or not I'm actually seated in front of it. If I've walked away, why fill the screen with documents I can't use?

Clear away the whole UI and fill the screen with big pictures and enormous text so I can glance up from the sofa and see a flashing icon that indicates an urgent email has just arrived from my editor and I need to put down the PlayStation controller and go read it. When I'm away from the desk for a long time, hey, what a perfect time to do system maintenance! And be sure to re-lock my system keychain in case someone walking by tries to access my password-protected assets while I'm away. A good idea. It was just a bit ahead of its time, like the Newton. I still think it could work, and to all those investors who lost their pension plans in BottomClick.Net, all I can say is that the bankruptcy was as big a surprise to me as it was to you.

Besides, the buttpad only slapped at the concept. The real transforming change, the thing that will *finally* push us past the increasingly mouldy interface concept of keyboard-and-mouse, is Bluetooth. I've got a Bluetooth mobile phone and a Bluetooth PDA and a Bluetooth headset, and any one of them would make the ultimate buttpad. With my headset on, my Bluetooth-enabled Mac can sense when I'm nearby, but it can also use its signal strength to decide whether I'm two feet away, twenty, or have left the building entirely. Even better, the OS could use a unique identifier in the device to find my physical location and verify my identity across a network. Imagine walking into an office on the other side of the building and five seconds after you sit down, the iMac on the desk has mounted your Home folder locally and its copy of iTunes is playing songs from your personal library?

We haven't even got started yet. Headset, PDA, phone... each one offers input and output. A simple, slimmed down Mini-Mac interface could allow you to exploit your Mac from anywhere in the room, not just from the chair at your desk. Your phone chirps; you pick it up and see an alert from your Mac warning you that Safari has just unexpectedly quit. Or, you touch a button on your headset and ask "When is my next appointment?" And through the earpiece, MacInTalk Victoria tells you. Or you glance at your PDA, whose display always shows the headers from the latest five emails that have arrived. I get the information I need and can continue staring numbly at my TV screen while flicking my thumbs, looking for cars to steal and pedestrians to run over.

The concept of keyboard-mouse-screen has remained unchanged for two decades. The concept of desktop Mac teamed with a wearable-slim-wireless-interface could be exactly what the huddled masses have been yearning for.

It might be a while before Apple's truly ready for this sort of thing, though. At the moment, the only way Panther can exploit a Bluetooth headset is as an iChat AV microphone. And while Salling Clicker is an extraordinary utility for making your Bluetooth PDA or phone work closely with your Mac, true revolution will never be a third-party product.

But Bluetooth is built into all new PowerBooks and it's an encouraged option on desktops. And Apple has come out with a smooth, compact Bluetooth mouse. All of the proximity-sensing advantages you get by walking around wearing a Bluetooth headset can be achieved by sticking your mouse in your pocket when you leave your desk.

It's ironic that the most revolutionary thing to take the place of a mouse might just be another mouse. And it's unfortunate that you folks were betting that for basic rudeness, this column couldn't top the suggestion that we should be operating our Macs with our buttcheeks. Because when you stick a mouse in your trouser pocket, exciting and wonderful things can happen. MW

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